

#20370.00D



1301 Third Street, Suite 328,
Detroit, MI
48226

BIDDING DOCUMENTS:

Detroit Lower East Side
Flood Mitigation Project

City of Detroit Building
Authority
Wayne County, MI

Issued for Bids:
September 26, 2023

Prepared By

giffels 
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Detroit, MI 48226

BID SET

City of Detroit Building Authority

BIDDING AND CONTRACT DOCUMENTS

Detroit Lower East Side Flood Mitigation Project

GIFFELS WEBSTER PROJECT NO 20370.00D

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**CITY OF DETROIT BUILDING AUTHORITY
WAYNE COUNTY, MI
DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT
(#20370.00D)**

ADVERTISEMENT FOR BIDS

Bids for the Detroit Lower East Side Flood Mitigation Project (#20370.00D) will be received, by the City of Detroit Building Authority via the online procurement platform BidNet Direct, until 12:00PM local time on a Bid Opening date of Thursday, October 12, 2023. Any Bids received after said Bid Opening date and time will not be valid or opened and will be returned to the Bidder.

The Project consists of the removal of approximately 150 feet of existing sea wall and 680 feet of existing fence and the construction of approximately 520 feet of new seawall and grading to create berms for flood mitigation, among other associated items of work around Detroit's lower east side. Work also includes approximately 140 feet of seawall replacement and other isolated repair areas at AB Ford Park and Lakewood Riverfront Park.

Bids will be received for a single prime Contract on a unit price basis. The Issuing Office for the Bidding Documents is as follows:

City of Detroit Building Authority
1301 Third Street, Suite 328, Detroit, MI
48226

Interested respondents must submit questions directly to BidNet by 5:00PM Thursday, October 5, 2023. Questions received after this time will not be answered. The DBA will post all answers to any questions via BidNet.

All Bidding Documents and addenda will be available on the internet starting September 26, 2023 where they can be viewed electronically.

Bid Documents are available through the following organization(s):

Michigan Inter-governmental Trade Network
<https://www.bidnetdirect.com/mitn>

Distribution of the Bid Documents through any means of delivery should be coordinated by the Bidder at their own cost. The date that the Bidding Documents are transmitted from the above organization(s) will be considered the Bidder's date of receipt of the Bidding Documents. Partial sets of the Bidding Documents will not be available.

Bids shall be submitted on the forms provided in the Bid Documents. Bid security shall be furnished in accordance with the Instructions to Bidders, payable to the City of Detroit Building Authority.

A mandatory pre-bid meeting will be held at the Detroit Building Authority (1301 Third Street, Suite 328, Detroit, MI 48226) on Tuesday, October 3, 2023 at 3:30 PM.

Each Bidder agrees to waive any claim it has or may have against the Owner, Engineer, and their respective Employees, arising out of or in connection with the administration, evaluation, or recommendation of any Bid.

The Owner reserves the right to accept or reject any or all base or alternative Bid items of work, in whole or in part, and to waive any informalities, therein when such waiver is in the interest of the Owner, and to award the Contract to other than the low Bidder.

The Respondent must agree to comply with the requirements of the City of Detroit's Ordinances and Civil Rights, Inclusion and Opportunity Department Requirements.

Bids shall remain firm for a period of 120 days.

Owner: City of Detroit Building Authority

By: Tyrone Clifton

Title: Director

Date: September 26, 2023

+ + END OF ADVERTISEMENT FOR BIDS + +

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ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

- A. *Issuing Office* – The office from which the Bidding Documents are to be issued.
- B. *Owner* – One who the bid is submitted to, City of Detroit Building Authority.
- C. *Bidder* – One who submits the Bid directly to the Owner as distinct from a sub-bidder, who submits a bid to a Bidder.
- D. *Successful Bidder* – The lowest, responsible, and responsive Bidder to whom the Owner (on the basis of the Owner’s evaluation as herein provided) makes an award.
- E. *Addendum* – Written document duly issued by the DBA which clarifies, modifies, amends, cancels or withdraws this RFQP.
- F. *City* – The charter City of Detroit, Michigan.
- G. *Component Score* – The number of points awarded to a vendor for a component score.
- H. *DBA* – Detroit Building Authority, a Michigan public body corporate.
- I. *GDRRA* – Greater Resource Recovery Authority
- J. *BSEED* – Buildings, Safety Engineering & Environmental Department
- K. *Evaluation Points* – The points awarded by the DBA to the vendor as an outcome of the qualification scoring formula.
- L. *Incomplete Proposal* – A proposal with a(n) alternate, incorrect, incomplete, or missing document.
- M. *Maximum Component Score* – The maximum number of points that are possible for a vendor to receive for a given component score.
- N. *Proposal* – One (1) electronic copy of all required documents submitted by an interested vendor in accordance with the terms and conditions expressed in this RFQP.
- O. *Price Score* – The points awarded by the DBA to the vendor as an outcome of the price scoring formula.
- P. *Qualified Proposal* – A proposal which has been reviewed by the DBA and determined by the DBA to be complete and correct.
- Q. *Raw Ranking Score* – The sum of a vendor’s evaluation rankings when qualifications are scored.
- R. *Respondent* – An interested vendor who submits a proposal in response to this RFQP.
- S. *RFQP Document* – This document and any other document incorporated herein by attachment, exhibit or reference.
- T. *Successful Vendor* – The highest-scoring vendor who receives a Notice of Award for the proposal submitted in response to this RFQP.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents may be obtained from the Issuing Office in the number and format stated in the advertisement or invitation to bid.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with its Bid (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:
 - A. Evidence of Bidder's authority to do business in the state where the Project is located.
 - B. Bidder's state or other contractor license number, if applicable.
 - C. Subcontractor and Supplier qualification information; coordinate with provisions of Article 12 of these Instructions, "Subcontractors, Suppliers, and Others."
 - D. Other required information regarding qualifications.
- 3.02 Each Respondent is required to possess a current Certificate of Good Standing (Corporation or Limited Liability Company) issued by the Michigan Department of Licensing and Regulatory Affairs, or a similar certificate from the appropriate licensing and regulatory agency from the State of appropriate jurisdiction for the Respondent – Corporations, Securities, & Commercial Licensing Bureau. If a Respondent is a Joint Venture, the Respondent is required to provide a current Certificate for each entity.
- 3.03 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.04 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.
- 3.05 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 4.01 *Site and Other Areas*
 - A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- 4.02 *Existing Site Conditions*
 - A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:
 - a. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
 - b. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
 - c. reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings. These reports and drawings, if they exist, are available by request only.
 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.
- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.
- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.
- 4.03 *Site Visit and Testing by Bidders*
- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
 - B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
 - C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

- D. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- E. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, if any, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, if any, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;

- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

- 6.01 A pre-Bid conference will be held with details given in Section 00 31 13 Preliminary Schedules. Bidders are encouraged to submit any questions or comments in writing to the contact person indicated on the Advertisement for Bids.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted directly on Bidnet by the date in Section 00 11 13 Advertisement for Bids and 00 31 13 Preliminary Schedules. Interpretations or clarifications considered necessary by Engineer/Owner in response to such questions will be answered via Bidnet. Questions received less than five days prior to the date for opening of Bids may not be answered.
- 7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents as deemed advisable by the Owner or Engineer.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of three percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within *fifteen (15)* days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid

security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 91 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for the Work.
- If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due

investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents; additional copies may be obtained from the Engineer.
- A. All blanks on the Bid Form shall be completed in ink or typed and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the corporate secretary or an assistant corporate secretary. The corporate address and state of incorporation shall be shown.
- A. A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.
- 13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.04 A Bid by an individual shall show the Bidder's name and official address.
- 13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.06 All names shall be typed or printed in ink below the signatures.
- 13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

- 13.09 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 *Lump Sum*

- A. Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form.

14.02 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity" (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.03 *Allowances*

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 Bidders shall submit directly via the online procurement platform BidNet with the required forms and documents.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to the location indicated in the advertisement or invitation to bid.
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

- 17.01 Bids will be opened electronically. A Bid tabulation of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

The DBA will score qualifications and local preferences on a one hundred (100) point scale as follows:

- Qualifications: Sixty-five (65) Points
- Local Preferences: Thirty-five (35) Points

After Qualifications and Local Preferences are scored, short-listed vendors will be invited to submit pricing via an RfP. If interviews are held, the respondents will be notified in writing.

- a. Scoring Qualifications. The DBA will score qualifications on a sixty-five (65) point scale as follows:

Respondents must submit documentation which illustrates their Proposal, experience, and capacity to perform the work sought through this RFQP. A team of no less than three (3) reviewers will evaluate and independently rank each Contractor's relative qualification to perform this work. Each Respondent's Raw Ranking Score is the sum of their evaluation rankings from each reviewer, i.e. a lower Raw Ranking Score than a higher one. The minimum Raw Ranking Score is the number of reviewers and the maximum Raw Ranking Score equals the number of reviewers times the number of qualified submittals being scored.

The formula to convert Raw Ranking Scores into Qualification Evaluation Points is as follows:

$$\text{Qualification Evaluation Points} = \left(1 - \frac{\text{Raw Ranking Score} - \# \text{ of Reviewers}}{\text{Max Raw Ranking Score Points} - \# \text{ of reviewers}} \right) * 65$$

The maximum amount of Proposal Evaluation Points a Respondent can score is 65, and the minimum is 0.

For example, if seven Respondents provide qualified submittals, each reviewer would rank the qualified submittals from 1 to 7, with 1 being the most preferred and 7 being the least preferred. The following table presents an example:

Respondent	Reviewer 1 Ranking	Reviewer 2 Ranking	Reviewer 3 Ranking	Reviewer 4 Ranking	Reviewer 5 Ranking	Raw Ranking Score	Qualification Evaluation Points
A	1	1	1	1	1	5	65.00
B	2	3	2	2	2	11	36.00
C	3	2	4	3	3	15	30.00
D	4	4	3	4	6	21	21.00
E	6	5	5	6	5	27	12.00
F	5	6	6	5	4	26	13.50
G	7	7	7	7	7	35	0.00

In submitting the proposal that outlines their qualifications, Respondents should note that the following factors are being considered:

1. Schedule.
 - i. The projected schedule must not conflict with the anticipated milestones listed in Section IX. Evaluators will look for detailed schedules.
2. Capacity.
 - i. Evaluators will look at capacity, such as number of applicable licenses, office staff, other staff who will work on this project.
3. Experience.
 - i. Evaluators will review evidence and documentation of successful performance of work of a similar scope.
 - ii. Licenses and certificates.
 - iii. References.
4. Other Qualifications.

- i. Respondents may submit any and all other information that may convey their qualifications and ability to perform this work.

Please refer to Exhibit C for more information on the Qualifications Evaluation Packet submittal.

- b. Scoring Local Preferences. The DBA will score local preferences on a thirty-five (35) point scale as follows:

In accordance with Ordinance No. 15-00, any Detroit based firm shall be deemed a better bid than the bid of any competing firm which is not Detroit-based.

PHASE TWO CRITERIA – PRIME CONTRACTOR ECONOMIC DEVELOPMENT

Detroit headquartered business 15 points

Detroit based business 5 points

Maximum points for phase two not to exceed fifteen (15) points.

PHASE THREE CRITERIA ECONOMIC DEVELOPMENT & CONTRACT PERFORMANCE OF PRIME AND SUBCONTRACTOR(S)

Detroit headquartered business 20 points

Detroit based business 10 points

Maximum points for phase three not to exceed twenty (20) points

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner believes would not be in the best interest of the Project to make an award to that bidder or finds, after reasonable inquiry and evaluation, to not be responsible whether, including without limitation, because the Bid is not reasonable, the Bidder is unqualified or of doubtful financial ability to meet any other pertinent standard, or criteria established by the Owner. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work and to negotiate contract terms with the bidder.
- 19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid whose evaluation by the Owner indicates to the Owner that the award will be in the best interests of the Project. Bid alternates will be considered in making this evaluation and shall be a mandatory requirement for a responsive Bidder. The City reserves the right to accept or reject any or all base or alternative Bid items of work, in whole or in part, and to waive any informalities, therein when such waiver is in the interest of the Owner, and to award the contract to other than the low Bidder.
- 19.03 Evaluation of Bids
 - A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

- B. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidders, whether or not the bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award and may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Bidding Documents. Owner also may consider the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.
- 19.05 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors, Suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

ARTICLE 20 – OFFICE OF THE INSPECTOR GENERAL

- A. In accordance with Section 2-106.6 of the City Charter, this Contract shall be voidable or rescindable at the discretion of the Mayor or Inspector General at any time if a Public Servant who is a party to the Contract has an interest in the Contract and fails to disclose such interest.
- B. This Contract shall also be voidable or rescindable if a lobbyist or employee of the contracting party offers a prohibited gift, gratuity, honoraria or payment to a Public Servant in relation to the Contract.
- C. A fine shall be assessed to the Contractor in the event of a violation of Section 2-106.6 of the City Charter. If applicable, the actions of the Contractor, and its representative lobbyist or employee, shall be referred to the appropriate prosecuting authorities.
- D. Pursuant to Section 7.5-306 of the City Charter, the Inspector General shall investigate any Public Servant, City agency, program or official act, contractor and subcontractor providing goods and services to the City, business entity seeking contracts or certification of eligibility for City contracts and person seeking certification of eligibility for participation in any City program, either in response to a complaint or on the Inspector General's own initiative in order to detect and prevent waste, abuse, fraud and corruption.
- E. In accordance with Section 7.5-310 of the City Charter, it shall be the duty of every Public Servant, contractor, subcontractor, and licensee of the City, and every applicant for certification of eligibility for a City contract or program, to cooperate with the Inspector General in any investigation pursuant to Article 7.5, Chapter 3 of the City Charter.
- F. Any Public Servant who willfully and without justification or excuse obstructs an investigation of the Inspector General by withholding documents or testimony, is subject to forfeiture of office, discipline, debarment or any other applicable penalty.
- G. As set forth in Section 7.5-308 of the City Charter, the Inspector General has a duty to report illegal acts. If the Inspector General has probable cause to believe that any Public

Servant or any person doing or seeking to do business with the City has committed or is committing an illegal act, then the Inspector General shall promptly refer the matter to the appropriate prosecuting authorities.

ARTICLE 21 – BONDS AND INSURANCE

- 21.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required insurance documentation.

ARTICLE 22 – SIGNING OF AGREEMENT

- 22.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within 10 days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents, including a complete set of Drawings with appropriate identification as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 23 – DELIVERABLES

- 23.01 The Successful Vendor shall be required to use the DBA's cloud based, capital projects management software system e-Builder (www.ebuilder.net). E-Builder will be used for all correspondences, submittals, budgets, RFI's, pay application, monthly reporting, etc.

PRELIMINARY SCHEDULES

Start site work after receiving the Notice to Proceed. The date indicated on the Notice to Proceed is the date at which Contract times commence. In no case shall site work be commenced prior to receipt of a formal Notice to Proceed by the Owner.

The tentative scheduled dates of activity are as follows:

Tuesday, September 26, 2023	Bid Package available for pickup (Bid issue date)
Tuesday, October 3, 2023	Pre-Bid Conference at 3:30PM
Thursday, October 5, 2023	Question Deadline at 5:00PM
Thursday, October 12, 2023	Bids due; Bid Opening at 12:00PM
Thursday, October 19, 2023	Owner awards Contract and issues Notice of Award
Friday, October 20, 2023	Owner delivers three unsigned books to Bidder for review and signature
Friday, November 3, 2023	Contractor delivers bonds, insurance, and signed books to Owner
Monday, November 13, 2023	Owner signs Contract (Effective Date of the Contract), delivering one Project Manual to Contractor and one to Engineer
Monday, November 20, 2023	Pre-Construction Meeting: Owner issues Notice To Proceed stating date of Contract Time Commencement
Monday, November 20, 2023	Contract Times Commence
Tuesday, March 19, 2024	Substantial Completion Date (120 Days from Contract Times Commencement)

Perspective Bidders will be required to participate in the pre-construction and (if applicable) pre-bid meetings with Owner and Engineering representatives to discuss a detailed Progress Schedule. The Owner will arrange the time and place for the meetings. The Progress Schedule shall include, at a minimum, the controlling work items for the completion of the project, the planned dates that these work items will be controlling operations, and the dates of Substantial and Final Completion.

Note that the above tentative schedule does not preclude the Owner from utilizing other requirements of the project related to timing in the Instructions to Bidders and General Conditions. Furthermore, Contractors shall coordinate all work with the Owner to ensure conflicts between this project and any other concurrent projects are avoided. Failure on the part of the Contractor to carry out provisions of this section as established may be sufficient cause to prevent bidding on future projects with the Owner.

GEOTECHNICAL DATA

The following report was prepared by SME on September 15, 2023, and should be used to determine the geotechnical and design recommendations for the proposed seawalls in the project.



GEOTECHNICAL ENGINEERING REPORT

CITY OF DETROIT FLOOD MITIGATION
LOWER EAST SIDE
DETROIT, MICHIGAN

SME Project No. 091506.00
September 15, 2023





15825 Leone Drive
Macomb, MI 48042

T (586) 731-3100

www.sme-usa.com

September 15, 2023

Mr. Mike Kozak, PE
Giffels Webster
6303 26 Mile Road, Suite 100
Washington, Michigan 48094

Via E-mail: mkozak@giffelswebster.com

RE: Geotechnical Engineering Report
City of Detroit Flood Mitigation
Lower East Side
Detroit, Michigan
SME Project No. 091506.00

Dear Mr. Kozak:

We have completed our geotechnical evaluation for the proposed Lower East Side flood mitigation project in Detroit, Michigan. This report presents the results of our observations and analyses, and our geotechnical recommendations and seawall design based on the information disclosed by the borings.

We appreciate the opportunity to be of service. If you have questions, would like to discuss our findings, or require additional information, please contact us.

Sincerely,

SME

Laurel M. Johnson, PE
Senior Consultant

Enclosed: Geotechnical Engineering Report; Dated September 15, 2023

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APPENDIX A

GIFFELS WEBSTER *GRADING & SEA WALL PLANS (SHEETS CP-1 THROUGH CP-14)*

BORING LOG TERMINOLOGY

BORING LOGS (B1 THROUGH B4)

PUBLIC PARCELS ON A CANAL

TABLE 1: DESIGN SUMMARY

NOTES – CITY OF DETROIT FLOOD MITIGATION

PHOTO LOGS

SHORING SUITE OUTPUT (3 PAGES)

APPENDIX B

IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL ENGINEERING REPORT

GENERAL COMMENTS

LABORATORY TESTING PROCEDURES

1. INTRODUCTION

This report presents the results of the geotechnical evaluation performed by SME for the proposed Flood Mitigation Project in the City of Detroit's Lower East Side. This evaluation was conducted in general accordance with the scope of services outlined in our November 18, 2022 email and as defined in our January 25, 2023 *Agreement for Professional Services*. Giffels Webster (GWE) authorized our services.

1.1 PROJECT BACKGROUND

The City of Detroit is implementing flood mitigation measures in the Lower East Side. The project area generally encompasses the southern and eastern sides of the Jefferson Chalmers neighborhood. The project is generally bordered by Clairpointe Street to the west, Jefferson Avenue to the north, Alter Road to the east, and the Detroit River to the south. The neighborhood generally includes vacant and occupied residential properties, with marinas and parks along the riverfront. The project generally involves repairing or demolishing existing public seawalls, installing new seawalls along City-owned properties, and/or regrading portions of publicly owned parcels for flood control. Refer to Figure 1.1 for additional information.



FIGURE 1.1: Jefferson Chalmers Neighborhood (Source- City of Detroit Interactive District Map)

In general, final design site grades will be established at elevation 580 feet. Specifically, the project involves the following:

- Installation of new sheet pile seawalls along the west and east banks of Fox Creek, from the Great Lakes Water Authority's (GLWA's) outfall structure at Jefferson Avenue to 950 Manistique Street.

- Installation of new sheet pile seawalls along the west bank of Fox Creek at 920 Manistique Street.
- A new sheetpile wall and repairs to an existing wall along the west bank of Fox Creek at 182 Ashland Street.
- Demolition of an existing seawall and installation of a new seawall along the east end of Harbor Island, along the west bank of Fox Creek.
- A new seawall along the west end of Harbor Island Street, between the southern terminus of Ashland Street and an unnamed canal.
- Repairs to the seawall along the west side of the unnamed canal between the eastern portion of Harbor Island Street and the western portion of Harbor Island Street.
- A new seawall along the west end of Klenk Island Street along the east bank of an unnamed canal.
- Regrading along the canals and parks from Maheras Memorial Playground along the west end of the project area to Alfred Brush Ford Park along the east side of the site, and from the Detroit River to Riverside Drive along the east side of the project limits and to the north end of the marina on the west end of the project area.
- *The project excludes a portion Ford Brush Park, which is currently under construction. Seawalls within Ford Brush Park will be repaired under the current construction contract, held by others. However, as this was not known at the time our site visits were conducted, a photo log for portions of Ford Brush Park is included in Appendix A.*

1.2 PREVIOUS DEVELOPMENT

The City of Detroit has undergone several generations of development. A significant amount of the riverfront is man-made land, particularly in the canal neighborhoods. The project footprint previously included swamps/wetlands and historical canal alignments, and the riverfront varied from current conditions. Refer to Figure 1.2.1 for additional information (1905 USGS Topographical Map).

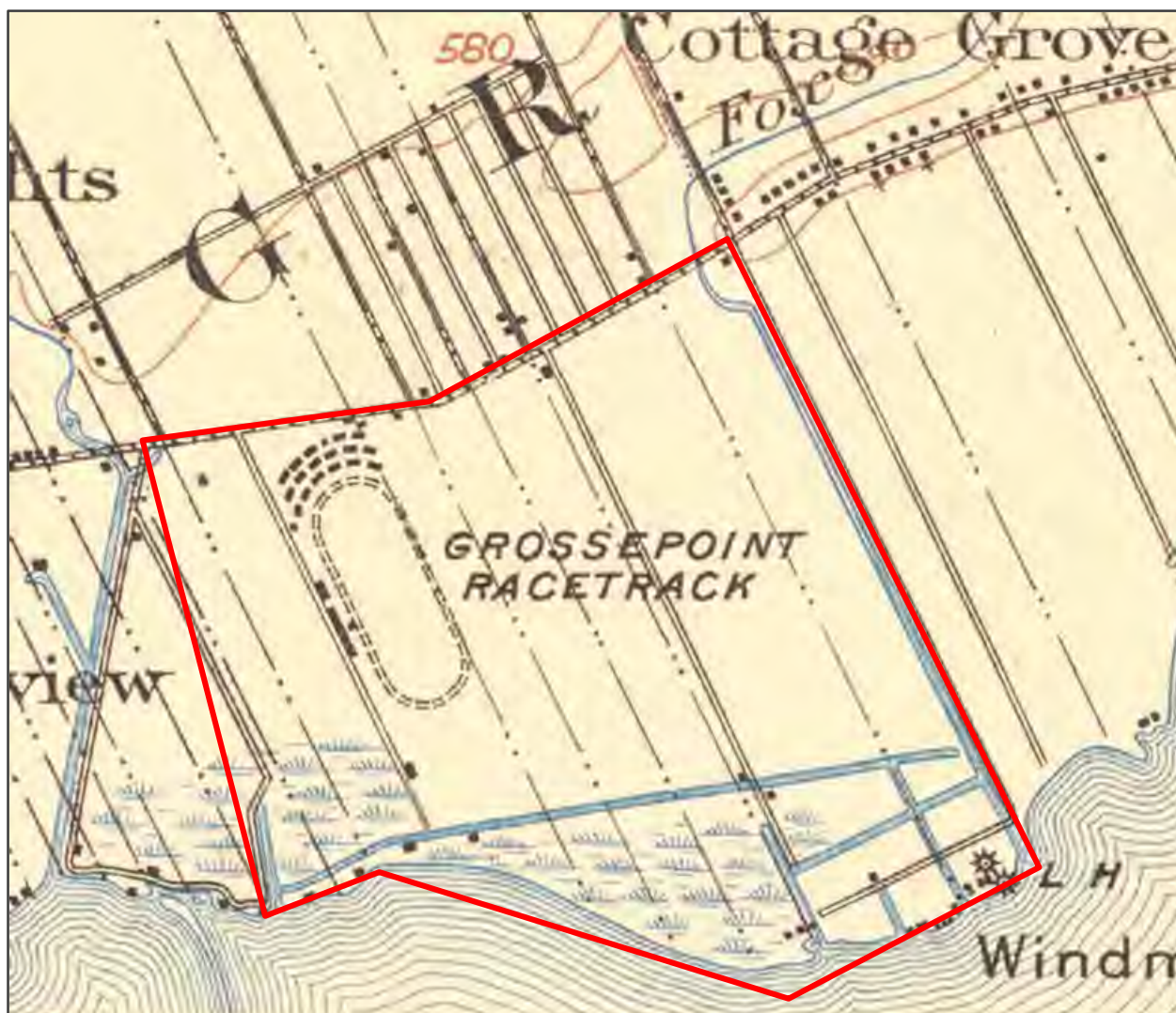


FIGURE 1.2.1 1905 Topographical Map of Project Area

2. EVALUATION PROCEDURES

2.1 FIELD EXPLORATION

2.1.1 SITE REVIEW

SME reviewed the public seawalls and bank areas along the publicly owned parcels beginning in late March 2023 through early May 2023. In general, we reviewed wall types, general site conditions, wall conditions, and site access. Properties reviewed were based on the *Public Parcels on a Canal* plan provided by GWE and included in Appendix A. Our observations are provided in the Photographic Logs in Appendix A.

2.1.2 SOIL BORINGS

SME completed four borings (B1 through B4) at the site on May 3 and May 4, 2023. The boring locations were cleared through the MISSDIG/ONE CALL public utility locating service prior to drilling. SME determined the number, depths, and locations of the borings. Not all areas with walls were drilled, largely due to lack of drill rig accessibility. The approximate boring locations are shown on the *Grading & Sea Wall Plan (Sheets CP-12 through CP-15 by GWE)* in Appendix A.

The borings extended 30 feet below the ground surface. Each boring was drilled using a truck-mounted rotary-type drill rig and were advanced using continuous-flight solid and hollow-stem augers. The borings included soil sampling based upon the Split-Barrel Sampling procedure. Thin-walled Shelby tube samples were collected at select depths. The N_{60} -values recorded on the boring logs represent the field-obtained Standard Penetration Test (SPT) resistances, corrected for drill rig hammer efficiency (also included on the boring logs). Recovered split-barrel samples were sealed in glass jars by the driller, and Shelby tube samples were sealed with caps and duct tape. Soil samples recovered from the field exploration were returned to the SME laboratory for further observation and testing.

Groundwater level measurements were recorded during and immediately after completion of each boring. Each boring was backfilled with excavated spoils after completing drilling and collecting groundwater readings. Borings in pavement areas were patched at the ground surface with an EPCO Hole-Plug, with asphalt cold patch at the surface. Long-term groundwater levels were not obtained from the borings.

Boring locations were referenced from existing structures. Ground surface elevations at the borings were estimated to the nearest ½-foot from the previously referenced plans by GWE.

2.2 LABORATORY TESTING

The laboratory testing program consisted of visual soil classification on recovered samples along with moisture content and hand penetrometer or Torvane shear tests on portions of cohesive samples obtained. The Laboratory Testing Procedures in Appendix B provide descriptions of the laboratory tests discussed above.

Upon completion of the laboratory testing, we prepared boring logs that include materials encountered, penetration resistances, pertinent field observations made during the drilling operations, and the results of certain laboratory tests. The boring logs are included in Appendix A. We developed the soil descriptions from both visual classification and the results of laboratory tests, where applicable.

Soil samples retained over a long time, even sealed in jars, are subject to moisture loss and are no longer representative of the conditions initially encountered in the field. Therefore, we retain soil samples in our laboratory for 60 days and then dispose, unless instructed otherwise.

3. SUBSURFACE CONDITIONS

3.1 SOIL CONDITIONS

We encountered about 4 inches of topsoil at the ground surface at borings B1 and B3, and 6 inches of hot mix asphalt (HMA) at borings B2 and B4. Below the surface soils, we encountered clay or sand fill with trace to frequent organic soils extending 3 to 9.5 feet below the ground surface. We obtained shear strengths in the clay fill of 1.5 to greater than 4.5 kips per square-foot (ksf) and corresponding moisture contents 13 to 26 percent, indicating a medium to hard condition. The sand fill is in a very loose to loose condition, based on N_{60} -values of 3 to 7 blows per foot (bpf).

Below the surficial materials and fill, we encountered native sands and clays that generally extended to the explored depths of the borings.

Shear strengths were obtained in the native clays ranging from 1.0 to greater than 4.5 ksf, with corresponding moisture contents of 12 to 25 percent, indicating a medium to hard condition. N_{60} -values of 3 to 61 blows per foot (bpf) were obtained in the native sands, indicating a loose to very dense condition.

Peat and peat layers were encountered above depths of about 6 to 8 feet at borings B1 and B3. A 3 foot thick layer of organic silt was encountered at depth of 5 feet at B3.

The soil profile described above and depicted on the boring logs are generalized descriptions of the conditions encountered. The stratification depths shown on the boring logs and described above indicate a zone of transition from one soil type to another and are not exact depths of change from one soil type to another. Soil conditions may be different in areas other than at the boring locations. Please refer to the boring logs for the soil conditions at the specific boring locations. We based the soil descriptions on visual classification of the soils encountered.

Consider thickness measurements of surficial materials reported on the boring logs approximate since mixing of these materials can occur in small diameter boreholes. Therefore, if accurate thickness measurements are required for inclusion in bid documents for purposes of design, perform additional evaluations such as shallow test pits.

It is sometimes difficult to distinguish between fill and natural soils based on samples and cuttings from small-diameter boreholes, especially when portions of the fill do not contain man-made materials, debris, topsoil or organic layers, and when the fill appears similar in composition to the local natural soils. Therefore, consider the absence of fill as noted on the appended boring logs is approximate only. Review former site topography plans, aerial photographs, and other historic site records and excavate test pits if a more comprehensive evaluation of the extent and composition of the fill is required.

3.2 GROUNDWATER CONDITIONS

We encountered groundwater at borings B2 through B4 during drilling between depths of 3 and 6 feet below the ground surface (elevations 570 feet to 573 feet), and at two borings at depths of 4 to 6 feet below the ground surface at completion of drilling (elevations 568 feet to 573 feet). Groundwater was not encountered in boring B1. Long-term groundwater levels are likely similar to the surface water elevation(s) in the adjacent canals and river. Perched groundwater may be encountered within granular layers or in granular fill overlying the relatively impermeable native clays, and heavy infiltration may occur during wetter periods.

For purposes of this project, we assumed a “normal water level” at 575 feet, and a base flood elevation (BFE) of 578 feet.

Expect hydrostatic groundwater levels and the volume of groundwater, especially from perched or trapped groundwater source(s), to fluctuate throughout the year, based on variations in precipitation, evaporation, surface runoff, and other factors.

The groundwater levels indicated by the borings and presented in this section represent conditions when we advanced the borings. The groundwater levels at the time of construction may vary.

4. ANALYSIS AND RECOMMENDATIONS

4.1 REGRADING

Portions of the public alignment will be regraded to re-establish level grade, and up to 3 feet of fill may be placed in park areas to establish low containment berms.

As neither significant organic deposits nor soft clays were encountered at the borings, because the berms are generally planned away from the edges of existing banks/slopes/seawalls, and because the additional fill will result in surcharges of less than 400 psf, settlement and stability analyses were not performed.

Strip the site of surface organic materials and exercise caution to avoid over-stripping the site. Begin by removing (grubbing) only that portion of the topsoil containing root matter. Once grubbing is complete, SME will review the resulting subgrade, collect surface samples as necessary, and identify areas requiring additional topsoil removal. Base the decision to remove topsoil on organic content, rather than color. Remove only those near-surface soils with 4.0 percent or greater organic content. Backfill resulting excavations with granular engineered fill.

Once the subgrade has been properly prepared as described above and remaining high areas have been cut, clayey sand fill or clay fill is generally anticipated at the ground surface. Compact the exposed subgrade with a large sheepsfoot roller and proofroll with a rubber-tired tandem axle dump truck. Recompect, undercut and backfill with engineered fill, or otherwise improve areas of poor subgrade identified by SME to establish a uniform subgrade.

As with any construction site, the exposed subgrade (after site stripping) will be sensitive to disturbance under construction traffic, especially if the subgrade becomes wet. Therefore, limit heavy construction traffic to designated access routes and material laydown areas, and grade the exposed surface after stripping to allow surface drainage to occur. Install a designated construction haul road consisting of one to three-inch diameter crushed concrete, possibly overlying a non-woven geotextile fabric, and “choked” with a thin layer of dense-graded crushed aggregate or crushed concrete.

Engineered fill placed within the construction area must be an approved material, free of frozen soil, organics, or other deleterious materials. Spread the fill in level layers and compact to a minimum of 95 percent of the maximum dry density as determined in accordance with the Standard Proctor test.

As the regrading and berm placement will be placed within a designated flood area, engineered fill should consist of low-permeability fill (clay fill). Compact clay fill with a sheep's foot roller. Limit loose thickness to the maximum lift size the contractor's equipment can uniformly compact at one time. Place and compact clay at 2 percent over the optimum moisture content.

Engineered fill must meet the general requirements listed in the previous paragraph. If the proposed fill contains more than four percent organics or debris larger than six inches in nominal diameter, we recommend not using such soils for engineered fill. Clay fill imported to the site should be tested for contaminants prior to on-site placement.

4.2 SEAWALLS

Refer to the Grading & Seawall Plans by GWE and Table 1: Design Summary in Appendix A for additional information.

4.2.1 DEMOLITION AND REPAIR OF EXISTING SEAWALLS

Prior to placement of new seawalls or installing caps on existing seawalls, portions of the seawalls will need to be demolished, and other areas will need to be repaired. In particular, we recommend the following (Note: photos of the areas discussed are included with the description, and additional photos are included in the photologs in Appendix A.):

1. The remaining seawalls at 14728 East Jefferson (where present), southward through 908 Manistique are in poor repair, and should be removed and replaced.



2. The seawall along the north side of 182 Ashland is in poor repair and should be removed and replaced. The south wall may remain, with repairs as needed. Access to this area is challenging due to the narrow lot size and an existing garage, and we understand this lot may be omitted from the project area due to the complication with the existing boathouse extending onto publicly-owned property.
3. The seawall at 14818 Harbor Island is destroyed, and should be removed and replaced.



4. In general, the public seawalls have not been maintained, and trees and scrub have been allowed to take over green areas behind the seawalls. The entire public seawall alignment should be cleared and grubbed, including removal of trees with canopies overhanging the seawalls. Particularly in existing park areas, some of the recommended repairs will require removal of sidewalks to access the inboard side of the seawalls.



5. There are several areas along the public alignment where sidewalks have not been maintained. Sidewalks should slope downward away from the inboard side of the seawall, should be maintained in a level condition, and should be regularly treated for vegetation, with joints sealed. Improperly maintained sidewalks allow accumulations of stormwater behind walls and promote further disrepair as the roots from vegetation will lead to deteriorated sidewalks.
6. There are several sections of public walls where baffles are in place, but where there are significant gaps between the base of the baffle and the seawall cap. Most of these areas are within the Alfred Brush Ford Park, which we understand will be repaired under the current park improvements plan.



7. Portions of the walls at the center of Harbor Island Drive (at the unnamed canal that separates the east and west portions of the street) are in poor repair, and rather than attempt repairs, we recommend removal and replacement. The west end of East Harbor Island Drive is currently missing a pile cap, tiebacks are exposed near the existing boathouse on the north side of the right-of-way (ROW), and animal burrows are located on the inland side of the wall.

Additionally, the portion of the wall missing the pile cap appears to be back-to-back flat steel panels, generally in poor repair (where visible), and the guy wire for the utility pole in the ROW is attached to the seawall. For these reasons, the seawall in this location should be removed and replaced. Coordination with the utility owner will be required. Similar conditions were observed at the north side of 182 Ashland.



8. In addition to seawall repairs, improvements to the ROWs are recommended behind the walls, including removal of brush and debris and regrading of greenbelt areas such that site grades slope downward away from the inboard sides of the seawalls. We recommend walls be backfilled as outline in the *Sheetpile and Berm Notes* in Appendix A, and as discussed in Section 4.2.3.



4.2.2 SEAWALL EXTENSIONS

Where existing seawalls can be repaired, extensions to the tops of existing seawalls are planned, bringing the tops of seawalls to elevation 580 feet.

Refer to the *Sheetpile Details* in Appendix A for additional information. Seawall extensions may be either cast-in-place concrete or a welded vertical extension.

Regardless, existing pile caps (where present) will need to be removed, and in many cases, the areas will need to be grubbed, debris removed, and fences removed to allow for access to the tops of the seawalls. Existing caps should be removed and new plates installed over existing seawalls to remain in place, to provide a uniform base for the cast concrete extension.

Where new vertical steel extensions are planned, the connections should be based on the condition and layout of the sheet pile wall after the cap is removed, with the contractor providing specific details to the engineer for review. A welded steel vertical extension of a single sheetpile type (such as remnants from new seawalls) could be installed over a welded base plate, similar to that planned for the cast-in-place concrete extension. A basis of design detail is included on the referenced *Sheetpile Details*.

It is important to note that due to access issues and vegetation, not all seawalls were accessible for visual review. Project budgets should include a final review of the seawall by SME or a structural engineer AND an allowance should be included for additional repair or demolition and installation of new seawalls where walls currently assumed to be in good repair are determined to be irreparable.

4.2.3 NEW SEAWALLS

New seawalls, with a top of seawall elevation of 580 feet, are planned at the following locations (see the *Grading & Sea Wall Plans* by GWE, included in Appendix A, for additional information):

- Along the north end of Fox Creek, extending southward from the GLWA outfall structure at Jefferson Avenue to the south end of 14700 East Jefferson Avenue on the west side of Fox Creek. There is currently no seawall along the west bank of the creek, and the new wall will tie into the seawall adjacent to the outfall structure at Jefferson Avenue and to the existing seawall at 950 Manistique Street.
- Along the north end of Fox Creek, extending southward from GLWA's flushing structure to the north end of 941 Ashland on the east side of Fox Creek. There is no existing seawall along the alignment, and the new seawall will tie into a new GLWA flushing structure headwall at the north end and a concrete seawall at 941 Ashland at the south end of the alignment.
- The seawalls along the west side of the Fox Creek Canal along the canal frontage at 920 and 908 Manistique Street. There is a privately-owned parcel between the City-owned parcels that is excluded from improvements, but the north end of the seawall at 920 Manistique will tie into an existing seawall at 930 Manistique, and the south end of the seawall at 908 Manistique will tie into an existing seawall at 900 Manistique.
- The north seawall extending off the northeast corner of the boathouse at 182 Ashland (along the west bank of the canal). The wall is currently in poor condition. We understand the existing boathouse may be unpermitted, and the south boathouse extends onto the City-owned property. Repairs will require demolition or temporary support of the boathouse(s). Therefore, this section of wall may remain in-place with vertical extensions beyond the boathouse(s), or may be excluded from the current project. See the "snip" from the City of Detroit Parcel Viewer (Figure 4.2.3) for additional information.



FIGURE 4.2.3 182 Ashland Street Parcel (City of Detroit Parcel Viewer)

- The seawall along the west bank of the Fox Creek Canal along the frontage for 14818 Harbor Island Street. There is an existing collapsed seawall along the alignment that will need to be removed and replaced. The wall will tie into a new wall across the east Harbor Island ROW to the north and the intact seawall at the southeast corner of 14820 Harbor Island Street.
- The seawall extending across the east end of the Harbor Island Street ROW between 14818 Harbor Island Street and 172 Ashland Street. This seawall will be constructed integrally with the new seawall installed along 14818 Harbor Island Street, tying into an existing seawall at 172 Ashland Street. There does not appear to be an existing seawall at this location, although the seawall to the south appears to extend partially into the ROW. This area was inaccessible to immediate review due to heavy scrub, fencing, and adjacent private property, and was visually reviewed from across the canal (from Alter Road).
- The seawall along the west Harbor Island Drive ROW, adjacent to the unnamed canal, between 14616 Harbor Island Street and 167 Ashland Street. There is an existing seawall at this location, but the seawall is in poor repair and an existing utility pole is anchored to the seawall. The new seawall will tie into existing seawalls at 167 Ashland to the north and 14616 Harbor Island to the south.
- Along the west end of the Klenk Street ROW, between 14615 Klenk Street and 14604 Klenk Street. There is no existing seawall, and the new seawall will tie into existing seawalls on the adjacent properties.

Where new walls are planned, remove trees, scrub, debris, fences, and other deleterious surface materials behind the wall and within the canal along the alignment. Based on visual review, we did not observe obvious evidence of intentional riprap; however, should riprap or intact concrete debris be encountered along the alignment, they may be removed, set aside, and reused as riprap, provided the concrete is broken up into sizes meeting the requirements of MDOT heavy riprap. The riprap should extend to the regular water level, estimated at elevation 575 feet, and based on a typical channel bottom elevation of 572 feet, would require about 3 feet of riprap along the face of the seawalls. Except for the seawalls closest to the river (where no wall improvements are currently planned **except along the river where walls will be repaired under the current Alfred Brush Ford Park construction contract**) and near the north end of Fox Creek adjacent to the GLWA outfall and flushing structures, scour is not a significant concern for the proposed improvements. This is because the interior canals where the improvements are planned are inland from the Detroit River, and are generally separated from the river by parcels between the canals.

The soil conditions in the area are such that organic soils and soft clays are limited as compared to other areas along the riverfront and in the Jefferson Chalmers area. Additionally, offset requirements are such that there will either be no future development along the tops of new walls or future structures will be offset at least 12 feet beyond the back sides of the seawalls, with structures along the seawalls limited to docks, decks, and/or sidewalks.

Our basis of design assumes a surcharge load of 150 psf applied at the top of wall and extending 16 feet off the back of the seawall. To reduce the risk of raveling of fines through the faces of the seawalls, we recommend a hot-rolled section be utilized, or a joint sealant product provided by the sheetpile manufacturer be used. Based on the “worst case” soil conditions along the alignment, accounting for a factor of safety for long-term section loss, and a maximum of 1 inch of deflection at the top of wall under the full deadload, we recommend a minimum section modulus (S) of 17.5 cubic inches per foot for a cantilever pile section. Shoreline SZ20 meets the minimum sheetpile requirements. Pile caps shall be channels or a manufactured section appropriate to the sheetpile section selected by the contractor. All steel shall be 60 ksi steel, new. Other sheetpile sections could be considered, but if proposed by the contractor, the contractor shall submit design analyses for the proposed sections to the engineer for review. Contractor-submitted designs shall be prepared by a licensed professional engineer.

Portions of the alignment will be difficult to access, and alternate sections may be considered. A smaller section may be feasible, provided no more than 1 inch of deflection occurs under the full load at the top of wall and upsizing for corrosion is considered. For small wall sections, ties or deadmen will be required.

As an alternative to a steel sheetpile section, a lightweight, concrete-filled vinyl section could be considered. A Truline Navy-Style Vinyl Wall section with timber piles at the face of the wall could be considered, although other vinyl sheeting providers may also be considered. The successful contractor shall provide a wall design, prepared by a licensed professional engineer, and submit to the engineer for review. The wall design shall meet the load and deflection criteria previously outline in this section. Steel sections shall consider long-term section loss due to corrosion, and timber piles shall consider long-term deterioration. **Note: for vinyl sections, caps should consist of vinyl caps, rather than a timber section as shown in the plans in Appendix A.**

The seawalls and seawall extensions will generally tie into embankment areas or existing concrete or steel seawalls. At most locations, the tops of new and/or extended seawalls will be established above top of wall elevations of adjacent walls. Where new seawalls or extensions terminate in embankment areas, the seawalls should return such that a uniform top of wall/top of berm condition is established, without forming a gap between the top of berm and adjacent wall. In most cases, a single or double-sheet return should suffice, with the embankment constructed after the wall. Where new walls abut existing walls, returns and corners should be constructed using manufacturer-provided corner sections. Provided existing walls are in fair condition, the gap between new walls and vertical extensions and existing walls can be in-filled above the water line by welding a minimum ½ inch thick steel plate to the new wall and tack-welding to the existing wall. Gaps or joints between the steel sections will need to be sealed with cement grout or concrete. A similar “floating” vertical face plate can be installed on the face of the new sheetpile, overlapping the adjacent concrete wall. Due to varying wall types and shapes, connections will need to be field-manufactured on a case-by-case basis, except where walls terminate at berms.

New seawalls (and existing seawalls where remediation results in depressions behind the walls) shall be backfilled with well-draining granular fill. As some of the areas will be difficult to access with heavy equipment, walls may be backfilled with open-graded crushed aggregate with a maximum aggregate size of 1½ inches. MDOT 6A meets this requirement. Prior to placing wall backfill, place a non-woven geotextile (such as Mirafi 140N) along the back side of the seawall, and extending along the top of the granular fill. Granular wall backfill and geotextile should be placed to 12 inches below final design site grades, and the upper 12 inches should consist of a combination of clay fill and topsoil. Clay fill will reduce stormwater runoff into the granular fill behind the seawall.

If non-aggregate fill is placed behind the seawalls, we recommend MDOT Class II. MDOT Class II and clay fill shall be placed in loose lifts appropriate to the size of equipment used to obtain compaction and be compacted to a minimum of 95% of the maximum dry density based the Standard Proctor Test.

Clay fill should be placed and compacted at 2 percent over the optimum moisture content; therefore, depending upon the time of year of construction, moisture-conditioning may be required.

Regarding drainage, install minimum 2-inch diameter weepholes through the face of the seawall at 10 feet on-center, above “normal” water level. Weep holes may consist of geotextile and PVC site-assembled, or pre-manufactured drains.

4.3 MAINTENANCE

Lawns, berms, and seawalls shall be maintained per the notes included on the *Sheetpile and Berm Notes* plan in Appendix A.

4.4 CONSTRUCTION CONSIDERATIONS

Groundwater may be encountered in excavations if construction occurs during wetter periods of the year. In general, we expect dewatering with conventional sump pits and pumps will be adequate to maintain a reasonably dry excavation for excavations extending one foot or less below the groundwater level. Multiple pumps in slotted casings will be required for deeper excavations.

Construction traffic will likely travel over existing pavements and sidewalks. Include a contingency for pavement and sidewalk repair or replacement adjacent to access drives/haul roads in the project budget.

Access to portions of the project alignment will be difficult. The canal is narrow and may not be accessible with a barge large enough to travel up Fox Creek to the north end of the project alignment. Further, access from public parcels is also limited, and streets in the area are narrow. Alternate construction methods and seawall materials may be required where limited access exists. Require the contractors visit the site to review the entire project alignment for access and other considerations.

The contractor must protect existing structures and utilities to remain in place during construction. Do not extend temporary excavations below the bottom of existing adjacent improvements (e.g., foundations, utilities, etc.) without bracing, shoring or underpinning of the existing improvement. Exercise care during the excavating and compacting operations so that excessive vibrations do not cause settlement of existing structures and pavements, or utilities are not damaged or undermined.

Vibrations are felt at significantly lower levels than those required to cause structural damage. Consider pre- and post-construction condition assessments of surrounding structures located within 150 feet of the project limits where heavy demolition or pile driving is planned, and limited vibration monitoring during construction activities generating vibrations. By implementing condition assessments and vibration monitoring, the potential for nuisance claims can be reduced.

Based on MIOSHA-STD-1306 (3/18/13) Part 9. Excavation, Trenching, and Shoring, the maximum angle of repose for excavations deeper than five feet (unsupported) for the soil and groundwater conditions encountered at the site are as follows:

SOIL TYPE	ANGLE OF REPOSE ¹
Natural Sands Above Groundwater Table	1H:1V (45 °)
Natural Sands Below Groundwater Table	2H:1V (26 °)
Engineered Sand Fill	1H:1V (45 °)
Stiff Clay (minimum of 2.5 tsf ²)	1/2H:1V (63°)
Firm Clay (minimum of 1.5 tsf ²)	2/3H:1V (56 °)

NOTES: 1. Conditions encountered during construction may require flatter slopes and/or a flat working space at the top of the slope. Also, flatter slopes would be required in clay with sand seams or partings that could potentially develop slide planes. As with any temporary slopes, weather conditions and surface runoff can adversely affect the slope condition.
2. Strength values are unconfirmed compressive strength based on a hand penetrometer.

5. SIGNATURES

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Senior Consultant

REPORT REVIEWED BY:

Timothy H. Bedenis, D.Ge., PE
Principal Consultant

APPENDIX A

GIFFELS WEBSTER *GRADING & SEA WALL PLANS (SHEETS CP-1 THROUGH CP-14)*

BORING LOG TERMINOLOGY

BORING LOGS (B1 THROUGH B4)

PUBLIC PARCELS ON A CANAL

TABLE 1: DESIGN SUMMARY

NOTES – CITY OF DETROIT FLOOD MITIGATION

PHOTO LOGS

SHORING SUITE OUTPUT (3 PAGES)

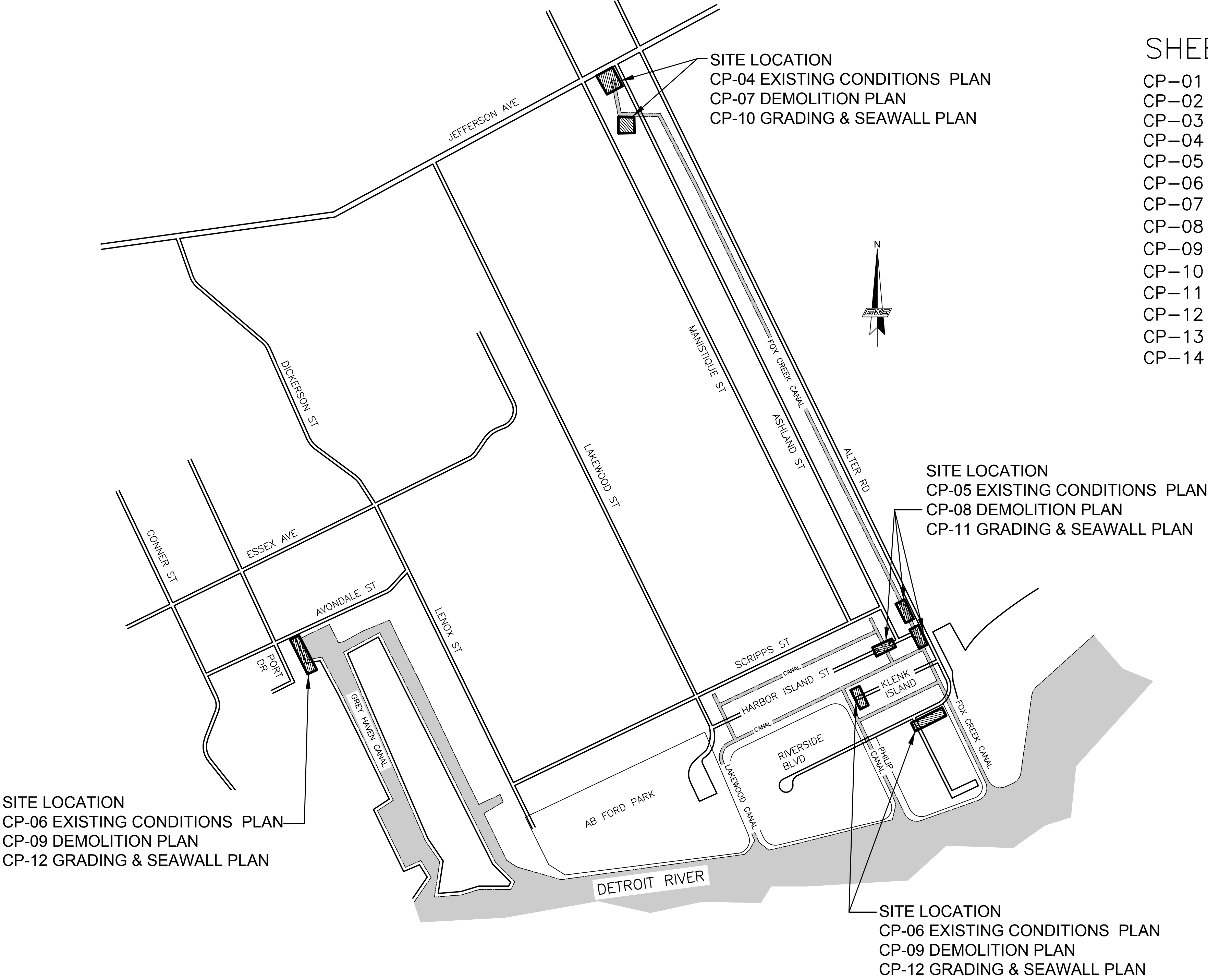
DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

CITY OF DETROIT WAYNE COUNTY, MICHIGAN

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THE DETROIT BUILDING AUTHORITY
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LOCATION MAP
NOT TO SCALE

SHEET INDEX	
CP-01	COVER SHEET
CP-02	NOTES AND DETAILS
CP-03	OVERALL EXISTING CONDITIONS
CP-04	EXISTING CONDITIONS PLAN
CP-05	EXISTING CONDITIONS PLAN
CP-06	EXISTING CONDITIONS PLAN
CP-07	DEMOLITION & SOIL EROSION PLAN
CP-08	DEMOLITION & SOIL EROSION PLAN
CP-09	DEMOLITION & SOIL EROSION PLAN
CP-10	GRADING & SEAWALL PLAN
CP-11	GRADING & SEAWALL PLAN
CP-12	GRADING & SEAWALL PLAN
CP-13	SHEETPILE DETAILS
CP-14	SHEETPILE AND BERM NOTES

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Quality Control:	MK
Section:	Section
	T-XX-S R-XX-X

Professional Seal:



DATE:	ISSUE:
Date	Issue
09.15.23	FOR BIDS

COVER SHEET	
DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT	
CITY OF DETROIT WAYNE COUNTY MICHIGAN	
Date:	06.13.23
Scale:	NONE
Sheet:	CP-01
Project:	20370.00D

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1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT STANDARDS, SPECIFICATIONS AND GENERAL CONDITIONS OF THE CITY OF DETROIT, AND ANY OTHER AGENCIES HAVING JURISDICTION.

2. UTILITY INFORMATION SHOWN ON THESE PLANS WAS OBTAINED FROM UTILITY OWNERS AND THEREFORE MAY NOT BE ACCURATE OR COMPLETE. THE CONTRACTOR SHALL VERIFY AND OBTAIN ANY INFORMATION NECESSARY REGARDING THE PRESENCE OF UNDERGROUND UTILITIES WHICH MIGHT HAVE AN IMPACT ON THIS PROJECT, AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES WHETHER THEY ARE SHOWN OR NOT ON THE PLANS.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AT PROPOSED CONNECTIONS AND/OR CROSSINGS, AND TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES TO THESE PLANS.

4. 72 HOURS PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CONTACT MISS DIG AT (800) 482-7171 FOR THE LOCATION OF UNDERGROUND GAS AND CABLE FACILITIES, AND SHALL ALSO NOTIFY REPRESENTATIVES OF OTHER UTILITIES LOCATED IN THE VICINITY OF THE WORK.

5. ALL PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR. ALL PERMIT FEES, BONDS, AND INSURANCE REQUIRED BY THE ISSUING AGENCIES SHALL BE PROVIDED BY THE CONTRACTOR, AND MUST BE KEPT CURRENT. THE CONTRACTOR IS RESPONSIBLE FOR ALL OTHER FEES, INSPECTION COSTS, ETC., AND SHALL ADHERE TO ALL REQUIREMENTS SET FORTH IN SAID PERMITS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL WORK AREAS TO ENSURE THE SAFETY OF ALL OCCUPANTS, VISITORS, PEDESTRIANS, WORKERS, ETC. THE CONTRACTOR SHALL REPAIR AND MAINTAIN ALL CONSTRUCTION FENCING AS NECESSARY.

7. THE CONTRACTOR SHALL PROVIDE FOR CONTROLLED ACCESS TO THE SITE FOR USE BY THE VARIOUS WORK FORCES, EMERGENCY VEHICLES, OCCUPANTS, VISITORS, ETC. THROUGHOUT CONSTRUCTION. THIS ACCESS MUST PROVIDE FOR THE REMOVAL OF MUD FROM VEHICLES TIRES. ROADWAYS AND DRIVEWAYS SHALL BE MAINTAINED OPEN FOR EMERGENCY VEHICLES AT ALL TIMES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE RESIDENTS AND BUSINESSES WHOSE DRIVEWAYS ARE AFFECTED BY THEIR SCHEDULE 24 HOURS IN ADVANCE. CONTRACTOR SHALL SCHEDULE CONSTRUCTION AT NON-PEAK USE HOURS AND SHALL MINIMIZE DRIVEWAY CLOSURE BY EXPEDITING CONSTRUCTION.

8. THE CONTRACTOR SHALL PROVIDE NECESSARY SIGNS, BARRICADES, AND LIGHTS TO PROTECT THE TRAFFIC AND THE WORK AS DIRECTED BY THE PLANS OR BY THE AGENCY WITH JURISDICTION. ALL TRAFFIC CONTROLS SHALL BE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD).

9. THE CONTRACTOR IS REQUIRED TO CONFINED CONSTRUCTION ACTIVITIES TO THE LIMITS OF THE SITE AS SHOWN ON THE CONSTRUCTION PLANS. ANY DAMAGE OR DISRUPTION TO ADJACENT SITES IS THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT IMMEDIATELY. NO OFF-SITE WORK SHALL BE PERFORMED OUTSIDE OF PUBLIC RIGHTS-OF-WAY OR DEDICATED EASEMENTS WITHOUT PRIOR WRITTEN APPROVAL OF THE PROPERTY OWNER.

10. GREAT CARE SHALL BE TAKEN TO AVOID DAMAGE TO VEGETATION OUTSIDE THE CLEARING AND GRUBBING LIMITS. NO DRIVING OR PARKING OF VEHICLES AND/OR STORAGE OF MATERIALS AND SUPPLIES SHALL BE PERMITTED OUTSIDE THE LIMITS OF CONSTRUCTION.

11. ALL ELEVATIONS ON THESE PLANS ARE ON THE NAVD 88 DATUM.

12. THE PROTECTION OF EXISTING TREES, AS REQUIRED, SHALL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY.

13. ALL CONSTRUCTION SHALL HAVE INSPECTION PROVIDED BY THE CITY OF DETROIT. THE CONTRACTOR SHALL CONTACT THE CITY OF DETROIT 48 HOURS BEFORE THE START OF CONSTRUCTION.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL, AND SHALL PROVIDE ALL NECESSARY MATERIAL AND EQUIPMENT TO KEEP DUST IN CHECK AT ALL TIMES. THE CONTRACTOR SHALL RESPOND IMMEDIATELY TO ANY AND ALL COMPLAINTS. DUST CONTROL SHALL BE INCIDENTAL TO THE PROJECT.

15. DURING CONSTRUCTION, THE CONTRACTOR MAY ENCOUNTER SPRINKLER HEADS, PIPING, LIGHTING AND BURIED ELECTRICAL CABLE, MAILBOXES, FENCES, SIGNS, ETC., THAT MAY OR MAY NOT BE INDICATED ON THESE PLANS. THE CONTRACTOR SHALL REPLACE AND/OR RESTORE ALL COMPONENTS OF SUCH SYSTEMS. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, MINIMUM STANDARD REQUIREMENTS, OR AS SPECIFIED HEREIN; WHICHEVER IS MORE STRINGENT.

16. ROADWAY, DRIVEWAY, AND PARKING AREA FINAL RESTORATION SHALL BE PERFORMED WITH SURFACE AND BASE MATERIALS MATCHING EITHER THE EXISTING MATERIALS IN QUALITY AND THICKNESS, PER MINIMUM REQUIREMENTS, OR PER THE FOLLOWING, WHICHEVER IS MORE STRINGENT:

- A. ASPHALT ROADWAYS - 4" ASPHALT MDOT 1100T-20 AA
- B. ASPHALT DRIVEWAYS - 3" ASPHALT MDOT 1100T-36 A
- C. GRAVEL ROAD AND DRIVEWAYS - 8" MDOT 22A GRAVEL
- D. CONCRETE ROADS - 6" 3500 PSI CONCRETE
- E. CONCRETE DRIVEWAYS - 6" 3500 PSI CONCRETE

17. ALL LOT MARKERS AND MONUMENT POINTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.

18. FINAL CLEANUP AND RESTORATION SHALL CONSIST OF FINE GRADING OF CONSTRUCTION AREAS, REMOVAL OF CONSTRUCTION SIGNS, ETC. TOPSOIL SHALL BE SPREAD OVER ALL DISTURBED AREAS, FOLLOWED BY SEED, FERTILIZER AND EROSION MAT OR STRAW MULCH, OR AS FURTHER REQUIRED BY THE LANDSCAPING PLANS AND SPECIFICATIONS. ALL REQUIRED RESTORATION ITEMS NOT SPECIFICALLY IDENTIFIED AS A PAY ITEM SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

19. THE UTILITY POLES SHOWN ON THESE DRAWINGS ARE INTENDED TO SHOW ONLY THE LOCATION OF EXISTING POLES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE QUANTITY AND DIRECTION OF OVERHEAD LINES. THE COST FOR SUPPORTING AND RELOCATING POLES SHALL BE INCIDENTAL TO THE PROJECT.

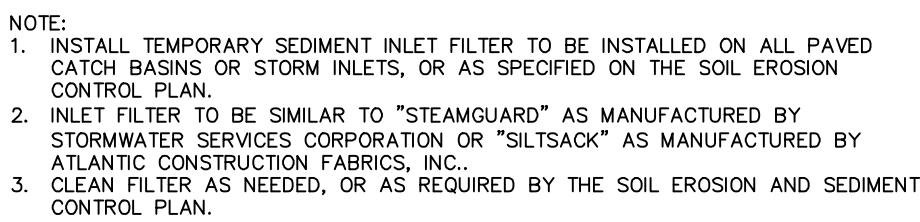
20. THE MEANS AND METHODS OF CONTROLLING GROUNDWATER AND DEWATERING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL COST ASSOCIATED WITH DEWATERING SHALL BE INCIDENTAL TO THE CONTRACT.

1. REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES.
2. WITH THE EXCEPTION OF AN AMOUNT OF EXCAVATED MATERIALS SUFFICIENT FOR BACKFILLING AND CONSTRUCTION OF FILLS AS CALLED FOR ON THE PLANS AND AS INDICATED BELOW, ALL BROKEN CONCRETE, STONE AND EXCESS EXCAVATED MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN THEIR OWN DISPOSAL GROUND, AND WILL RECEIVE NO ADDITIONAL COMPENSATION FOR DISPOSING OF ANY OF THE EXCESS MATERIALS. MATERIALS ACCEPTABLE TO THE ENGINEER MAY BE DISPOSED OF ON-SITE AT THE CONTRACTORS EXPENSE IN A MANNER APPROVED IN ADVANCE BY THE ENGINEER.
3. THE EDGE OF EXISTING PAVEMENT SHALL BE CLEANED OF EARTH AND OTHER FOREIGN MATERIAL BEFORE ADJACENT POURS ARE PLACED.
4. ALL BULKHEAD AND/OR SEWER PIPE REMOVAL NECESSITATED BY THE REMOVAL OF DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE STRUCTURE REMOVAL.
5. STREET SIGNS IN THE WAY OF CONSTRUCTION WILL BE REMOVED AND RESET IMMEDIATELY IN A TEMPORARY LOCATION, AS APPROVED BY ENGINEER.
6. THE CONTRACTOR SHALL PROTECT ALL EXISTING SIGNS AND POSTS SCHEDULED TO REMAIN, AS DIRECTED BY THE ENGINEER.
7. ALL UNDERGROUND UTILITIES NOT INDICATED FOR PROTECTION SHALL BE PROTECTED THROUGHOUT CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PRIVATE PROPERTY (INCLUDING BUILDINGS AND FOUNDATIONS) THROUGHOUT CONSTRUCTION AND SHALL MAINTAIN SAFE PEDESTRIAN ACCESS AT ALL TIMES.
9. THE REMOVAL OF PAVEMENT, CURBS AND WALKS SHALL INCLUDE ALL REQUIRED SAWCUTTING. CURB REMOVAL IS INCIDENTAL TO PAVEMENT REMOVAL.



1. REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES.
2. REFER TO ARCHITECTURAL PLANS TO COORDINATE ALL:
 - A. WATER SUPPLY, METERING, SPRINKLER AND FDC PIPING, DESIGN AND COORDINATION
 - B. BUILDING SEWER, BUILDING DRAIN DESIGN AND CONNECTIONS TO CLEAN OUTS AND ROOF CONNECTORS
 - C. GAS, ELECTRIC AND COMMUNICATION SERVICES, AND LIGHTING DETAILS
 - D. ALL BUILDING ACCESS WALKS AND ENTRY DETAILS, INCLUDING SUPPORTED SLABS
 - E. ALL WORK TO CONSTRUCT THE BUILDING AND ALL ITEMS CONNECTED TO IT
3. ALL TRENCHES WITHIN A ONE ON ONE SLOPE OF PAVEMENT SHALL BE BACKFILLED WITH SAND (MDOT CLASS II MINIMUM) AND MECHANICALLY COMPACTED IN NOT MORE THAN 9" LAYER TO 95% MAXIMUM DRY DENSITY PER MODIFIED PROCTER COMPACTION TEST ASTM D-1557. COMPACTED SAND BACKFILL SHALL ALSO BE PROVIDED FOR ALL SEWER TRENCHES LOCATED UNDER, OR WITHIN, THREE FEET OF PAVEMENT.
4. THE COST OF ALL TREE, STUMP, FOUNDATION AND/OR STRUCTURE REMOVAL AND DISPOSAL NOT INCLUDED IN THE PROPOSAL SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE PRICE BID FOR WATERMAIN, SANITARY SEWER, STORM SEWER, AND PAVING WORK.
5. A MINIMUM VERTICAL CLEARANCE OF 18 INCHES IS REQUIRED AT UTILITY CROSSINGS (MEASURED FROM THE OUTSIDE OF PIPE TO THE OUTSIDE OF PIPE). POSITIVE PROVISIONS SHALL BE MADE TO ENSURE THAT ALL UTILITY TRENCHES ARE FREE DRAINING DURING ALL PHASES OF CONSTRUCTION.
6. THE REQUIRED BEDDING FOR SEWER PIPE SHALL CONSIST OF A MAXIMUM 3/4 INCH DIAMETER CRUSHED STONE.
7. THE MINIMUM SLOPE FOR A BUILDING LEAD IS 1%. LEADS SHALL ONLY BE CONNECTED TO THE MAIN LINE WITH WYES.
8. ALL STORM SEWER PIPE SHALL BE CONSTRUCTED WITH RUBBER GASKET (PREMIUM) JOINTS.
9. THE CONTRACTOR SHALL COORDINATE THE REMOVAL OF ALL UTILITY LINES AND STRUCTURES, AS OUTLINED ON THE DEMOLITION PLAN, WITH THE INSTALLATION OF UTILITY IMPROVEMENTS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING GRADE MODIFICATIONS INDICATED ON THE FINISHED LANDSCAPE PLAN, AND COORDINATE THE ACTUAL FINISH GRADE OF FIRE HYDRANTS, GATE VALVE CASTINGS, MANHOLES, YARD DRAINS, CLEAN OUTS AND OTHER UTILITY STRUCTURES. ENSURE THAT ALL FINISH GRADING IS PERFORMED IN A MANNER THAT ACCOMPLISHES THE PROJECT DESIGN OBJECTIVES AND PROVIDES FOR POSITIVE DRAINAGE OF ALL AREAS. ANY SUBSTANTIAL GRADE CHANGES WHICH MAY CAUSE FUNCTIONAL PROBLEMS SHALL BE REPORTED PROMPTLY TO THE ENGINEER WHO SHALL EVALUATE THE CONDITIONS AND PROVIDED CORRECTIONAL RECOMMENDATIONS TO THE OWNER FOR FINAL DETERMINATION.
11. CONTRACTOR SHALL BE REQUIRED TO COORDINATE THE INSTALLATION OF GAS, ELECTRIC, PHONE, CABLE, SPRINKLERS ETC., IN SUCH A MANNER THAT WILL FACILITATE THEIR PROPER INSTALLATION PRIOR TO PLACING THE PAVEMENT MATERIALS. ENSURE THAT ALL REQUIRED PIPES, CONDUITS, CABLES AND SLEEVES ARE PROPERLY PLACED AND THAT THE TRENCHES ARE PROPERLY BACKFILLED AND COMPACTED.
12. THE CONTRACTOR SHALL REMOVE UTILITIES, WHICH HAVE BEEN ABANDONED IN PLACE, AS REQUIRED TO COMPLETE INSTALLATION OF NEW UTILITIES. WHENEVER ABANDONED UTILITIES ARE CUT, CONTRACTOR SHALL COMPLETELY CAP BOTH ENDS TO PREVENT THE INFILTRATION OF SOILS.
13. NO CONNECTION MAY BE MADE TO ANY EXISTING WATER MAIN UNTIL THE NEW MAIN HAS PASSED ALL PRESSURE AND BACTERIOLOGICAL TESTING.
14. ROADWAY, DRIVEWAY AND PARKING AREA CROSSINGS SHALL BE TEMPORARILY CONDITIONED IMMEDIATELY AFTER CROSSING BY PLACING 8" OF MDOT 22A GRAVEL OR SLAG AGGREGATE, AND SHALL BE MAINTAINED IN GOOD, DUST FREE CONDITION UNTIL PAVEMENT RESTORATION IS TEMPORARY.

1. REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES.
2. THE PAVING CONTRACTOR SHALL BE REQUIRED TO COORDINATE THE INSTALLATION OF GAS, ELECTRIC, PHONE, CABLE, SPRINKLERS, ETC. IN SUCH A MANNER THAT WILL FACILITATE THEIR PROPER INSTALLATION PRIOR TO PLACING THE PAVEMENT MATERIALS. ENSURE THAT ALL REQUIRED PIPES, CONDUITS, CABLES AND SLEEVES ARE PROPERLY PLACED AND THAT THE TRENCHES ARE PROPERLY BACKFILLED AND COMPACTED.
3. BUTT JOINTS SHALL BE PLACED AT ALL LOCATIONS WHERE AN EXISTING ASPHALT PAVEMENT SURFACE IS BEING DISTURBED BY REMOVALS AND/OR THE INSTALLATION OF NEW ASPHALT PAVEMENT.
4. ALL PAVEMENT AREAS SHOULD BE CLEARED AND GRUBBED BY REMOVING SURFACE VEGETATION, TOPSOIL, DEBRIS AND OTHER DELETERIOUS MATERIALS.
5. THE PLACEMENT OF THE FINAL ASPHALT LIFT SHALL BE DELAYED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED, OR AS PROVIDED BY THE OWNER. A BOND COAT OF SS-1H EMULSION SHALL BE APPLIED (AT A RATE OF 0.10 GALLONS/S.Y.D.) BETWEEN THE LEVELING AND WEARING COURSE WHEN 48 HOURS HAVE ELAPSED BETWEEN PLACEMENTS.
6. THE FINAL SUB-GRADE SHALL BE THOROUGHLY PROOF-ROLLED UNDER THE OBSERVATION OF THE SOILS ENGINEER.
7. PROPOSED AGGREGATE BASE SHALL EXTEND A MINIMUM OF 1 FOOT BEYOND THE PAVEMENT EDGE/BACK OF CURB.
8. ALL TRENCHES WITHIN A ONE ON ONE SLOPE OF PAVEMENT SHALL BE BACKFILLED WITH SAND (MOT CLASS II MINIMUM) AND MECHANICALLY COMPACTED IN NOT MORE THAN 9" LAYER TO 95% MAXIMUM DRY DENSITY PER MODIFIED PROCTER COMPACTION TEST ASTM D-1557.
9. NO FROZEN MATERIAL SHALL BE PERMITTED AS BACKFILL UNDER ANY ROADWAY, DRIVEWAY OR PARKING AREA.
10. PRIOR TO THE START OF ANY FILLING, THE CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ALL OTHER UNACCEPTABLE SOIL FROM THE FILL AREAS, AND PROPERLY BACKFILL WITH ACCEPTABLE SOIL.
11. BARRIER FREE SIGNAGE SHALL BE PLACED IN FRONT OF EVERY DESIGNATED BARRIER FREE STALL. THE CONTRACTOR SHALL COORDINATE STANDARD AND VAN ACCESSIBILITY SIGNAGE AS INDICATED ON THE PLANS.
12. ALL BARRIER FREE RAMPS TO BE A.D.A. COMPLIANT.
13. GENERAL GRADING REQUIREMENTS ARE AS FOLLOWS:
 - A. FINISH GRADE AT EXISTING BUILDING SHALL MATCH BRICK LEDGES, DOORWAYS OR BASEMENT WINDOWS
 - B. MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING ($\pm 2\%$)
 - C. SIDEWALK CROSS SLOPE $\pm 2\%$ UNLESS OTHERWISE NOTED (EXCLUDING RAMPS)
 - D. PAVEMENT SLOPES (1.0% MINIMUM, 4.0% MAXIMUM) UNIFORMLY BETWEEN FINISH GRADE ON PLANS
 - E. LAWN AREAS $\pm 1\%$ MINIMUM TO 25% (BERMS) MAXIMUM
14. ALL PROPOSED GRADES ARE AT THE GUTTER UNLESS OTHERWISE NOTED. SEE DETAILS FOR FACE OF CURB, TOP OF CURB AND ASPHALT ADJUSTMENTS.
15. REFER TO ARCHITECTURAL PLANS TO COORDINATE ALL:
 - A. WATER SUPPLY, METERING, SPRINKLER AND FDC PIPING, DESIGN AND COORDINATION
 - B. BUILDING SEWER, BUILDING DRAIN DESIGN AND CONNECTIONS TO CLEAN OUTS AND ROOF CONNECTORS
 - C. GAS, ELECTRIC AND COMMUNICATION SERVICES AND LIGHTING DETAILS AND COORDINATION.
 - D. ALL BUILDING ACCESS WALKS AND ENTRY DETAILS, INCLUDING SCHEDULED SLABS
 - E. ALL WORK TO CONSTRUCT THE BUILDING AND ALL ITEMS CONNECTED TO IT
16. PRIOR TO THE PLACEMENT OF ANY BASE ASPHALT OR LEVELING COURSE, THE CURBS SHALL BE PARTIALLY BACKFILLED AND THE SUB-GRADE SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF THE SOILS ENGINEER.
17. ALL SIDEWALKS AND PATHWAYS IN ANY PUBLIC R.O.W. SHALL BE INSPECTED BY THE AGENCY WITH JURISDICTION.



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1. REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES.
2. ALL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF DETROIT, WAYNE COUNTY, AND IN WATERWAYS. (WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES, PONDS AND WETLANDS) ON ANY OFF-SITE AREAS OR IN WATERWAYS. (WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES, PONDS AND WETLANDS) ON ANY OFF-SITE AREAS OR IN WATERWAYS.
3. THE CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS DIRECTED ON THESE PLANS AND WHENEVER OTHERWISE REQUIRED BY THE WORK. THE CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER CHANGES HAVE BEEN ACCOMPLISHED.
4. SOIL EROSION CONTROL PRACTICES WILL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENTATION CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF DIRT OUT OF THE WORK AREA.
5. THE CONTRACTOR SHALL PRESERVE NATURAL VEGETATION AS MUCH AS POSSIBLE.
6. PROTECT ALL EXISTING TREES, INCLUDING THEIR BRANCHES AND ROOTS, FROM DAMAGE DUE TO THIS WORK UNLESS SPECIFICALLY IDENTIFIED FOR REMOVAL.
7. VEGETATION STABILIZATION OF ALL DISTURBED AREAS SHALL BE ESTABLISHED WITHIN 15 DAYS OF COMPLETION OF FINAL GRADING.
8. THE CONTRACTOR SHALL SWEEP THE EXISTING STREETS SURROUNDING THE PROJECT SITE ONCE A WEEK, OR AS DIRECTED BY THE ENGINEER OR INSPECTOR. STREET SCRAPING SHALL BE PERFORMED IN CONJUNCTION WITH THIS SWEEPING ON AN AS NEEDED BASIS.
9. THE SEDIMENT CONTROL FENCING INDICATED ON THIS PLAN IS NOT INTENDED TO SHOW THE EXACT LOCATION OF THE FENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE REQUIRED TO CONTAIN SEDIMENT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH ALL APPLICABLE NPDES REGULATIONS, INCLUDING: INSPECTION, RESTORATION, AND RECORD KEEPING REQUIREMENTS.
11. THE CONTRACTOR IS RESPONSIBLE FOR ON-GOING MAINTENANCE OF ALL SOIL EROSION CONTROLS AS INDICATED BY THESE PLANS.
12. CONSTRUCTION ACTIVITIES (INCLUDING INSTALLATION OF PIPE AND ASSOCIATED VALVES, STRUCTURES, BACK FILLING, SURFACE RESTORATION, AND REMOVAL OF EXCESS EXCAVATED MATERIAL) SHALL BE ACCOMPLISHED IN ONE CONTINUOUS OPERATION.
13. PAYMENT AND/OR VEGETATION SHALL NOT BE STRIPPED FROM AN AREA UNLESS CONSTRUCTION ACTIVITIES ARE TO COMMENCE IN THAT AREA WITHIN THE NEXT THREE DAYS.
14. IF FOR ANY PERIOD PERMANENT STABILIZATION CAN NOT BE PROVIDED WITHIN 15 DAYS OF THE COMPLETION OF PIPE LAYING OPERATIONS, TEMPORARY STABILIZATION SHALL BE PROVIDED AT ALL DISTURBED AREAS. TEMPORARY STABILIZATION SHALL FURTHERMORE BE PROVIDED DURING THE NON-GROWING SEASON (OCTOBER 1 THROUGH APRIL 20) FOR ALL AREAS TO BE SEED.
15. TEMPORARY STABILIZATION SHALL CONSIST OF EITHER SMALL GRAIN STRAW OR GRASS HAY SPREAD AT THE RATE OF 1.5 TO 2.0 TONS PER ACRE, OR MULCH BLANKETS, WHICH SHALL BE ANCHORED IN PLACE TO PREVENT DISPLACEMENT FROM WIND AND RAIN. TEMPORARY STABILIZATION SHALL BE REPAIRED AS OFTEN AS NECESSARY, AS DETERMINED BY THE AGENCY WITH JURISDICTION.
16. ALL DETERIORATING SHALL BE ACCOMPLISHED IN A MANNER THAT WILL NOT CONTRIBUTE TO DEPOSITION OF SEDIMENT IN ROAD DITCHES OR OPEN WATER.
17. THIS PROJECT SHALL BE CONSTRUCTED IN COMPLIANCE WITH PART 91 OF ACT 451 OF 1994, AS AMENDED.
18. SEDIMENT CONTROL FENCING SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND SEVERAL TIMES DURING PROLONGED STORM EVENTS. IF THE FENCE IS SAGGING, OR SOIL HAS REACHED ONE HALF OF THE HEIGHT OF THE FABRIC, THE SOIL BEHIND THE FABRIC SHALL BE REMOVED AND DISPOSED OF IN A STABLE AREA OF THE SITE. IF WATER IS SEEPING UNDER THE FENCE, OR THE FABRIC IS DECOMPOSED OR OTHERWISE INEFFECTIVE, THE FENCE SHALL BE REMOVED AND PROPERLY REINSTALLED AS INDICATED ON THESE PLANS.
19. MUD MAT ENTRANCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH STORM RAINFALL. THE SURROUNDING ROADS SHALL ALSO BE INSPECTED AT THIS TIME FOR EVIDENCE THAT MUD IS BEING TRACKED OFF OF THE SITE. MAINTENANCE SHALL INCLUDE THE INSTALLATION OF ADDITIONAL LAYERS OF STONE WHEN THE ORIGINAL STONE BECOMES COVERED WITH MUD. ALL SEDIMENT DROPPED OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS SHALL BE REMOVED IMMEDIATELY BY SWEEPING AND SCRAPING (AS MAY BE REQUIRED BY THE ENGINEER).
20. SEDIMENT INLET FILTERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND SEVERAL TIMES DURING PROLONGED STORM EVENTS. THE FILTERS SHALL BE CLEANED PERIODICALLY THROUGHOUT CONSTRUCTION TO AVOID CLOGGING. FILTERS THAT CANNOT BE MAINTAINED BY CLEANING SHALL BE COMPLETELY REPLACED.

1. INSTALL MUD MATS, SILT FENCE AND INLET FILTERS AT ALL EXISTING LOCATIONS AS SHOWN AND AS REQUIRED TO ACHIEVE ON-SITE CONTAINMENT.
2. CLEAR AND ROUGH GRADE THE PROJECT "WORK AREA" AS NEEDED.
3. INSTALL PROPOSED SEAWALL IMPROVEMENTS PER PLANS AND DETAILS FINAL GRADE WORK AREA AS SHOWN ON PLANS.
4. CLEAR ALL ACCUMULATED SILT AND REMOVE ALL EROSION CONTROL DEVICES.
5. INSTALL LANDSCAPING MATERIALS AS INDICATED PER PLANS & RE-SEED, FERTILIZE AND MULCH ALL DISTURBED AREAS.

1. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF LOCAL ORDINANCES.
2. ALL AREAS NOT BUILT, LANDSCAPED, OR PAVED UPON SHALL RECEIVE SEASONED DOUBLE SHREDDED HARDWOOD BARK MULCH.
3. DURING INSTALLATION AND CONSTRUCTION, THE CONTRACTOR MUST PROVIDE A WATERING METHOD FOR ALL PLANT MATERIAL UNTIL IT HAS BECOME ESTABLISHED.
4. TWO (2) YEAR GUARANTEE PERIOD BEGINS AT FINAL ACCEPTANCE OF LANDSCAPE MATERIAL BY THE CITY'S REPRESENTATIVE, A LANDSCAPE ARCHITECT, AND PRIOR TO THE AUTHORIZATION OF THE OCCUPANCY PERMIT.
5. A MINIMUM OF ONE CULTIVATION IN EACH MONTH OF JUNE, JULY, AND AUGUST SHALL BE PERFORMED WITHIN THE 2 YEAR WARRANTY PERIOD.
6. THE DEVELOPMENT OF THIS SITE WILL NOT RESULT IN ANY INCREASE IN DUST, ODOR, SMOKE, FUMES, NOISE, LIGHTS, OR OTHER OBJECTIONABLE FEATURES.
7. GRASS SEED SHALL BE CERTIFIED TURF GRASS SEED COMPLYING WITH A.S.P.A SPECIFICATIONS, AND FREE OF WEED SEEDS AND UNDESIRABLE NATIVE GRASSES. SEEDED AREAS SHALL NOT BE PERMITTED TO DRY OUT. ALL LAWN AREAS SHALL BE FERTILIZED AND WATERED AS REQUIRED DURING THE FIRST GROWING SEASON TO MAINTAIN A DENSE AND VIGOROUS GROWING LAWN. AREAS SCHEDULED FOR LAWN SEED SHALL RECEIVE A MINIMUM OF 3" OF SCREEN TOPSOIL AT 3" DEPTH. UNLESS OTHERWISE NOTED ON PLANS:
 - 30% PERENNIAL RYEGRASS
 - 20% PARK KENTUCKY BLUEGRASS
 - 45% CREEPING RED FESCUE
 - 5% ANNUAL RYEGRASS
8. 4 LB /1000 SF SEEDING RATE
9. IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO PROVIDE WATER AS REQUIRED TO ENSURE DELIVERY OF PROPER AND ADEQUATE WATER SUPPLY TO ALL PLANT MATERIAL. TO ENSURE THE ESTABLISHMENT OF HEALTHY PLANT MATERIAL FOR THEIR FIRST YEAR OF GROWTH. FOLLOWING THE LANDSCAPE CONTRACTOR'S TWO-YEAR IRRIGATION REQUIREMENT PERIOD, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH SUGGESTED IRRIGATION MAINTENANCE SCHEDULE FOR THEIR USE.



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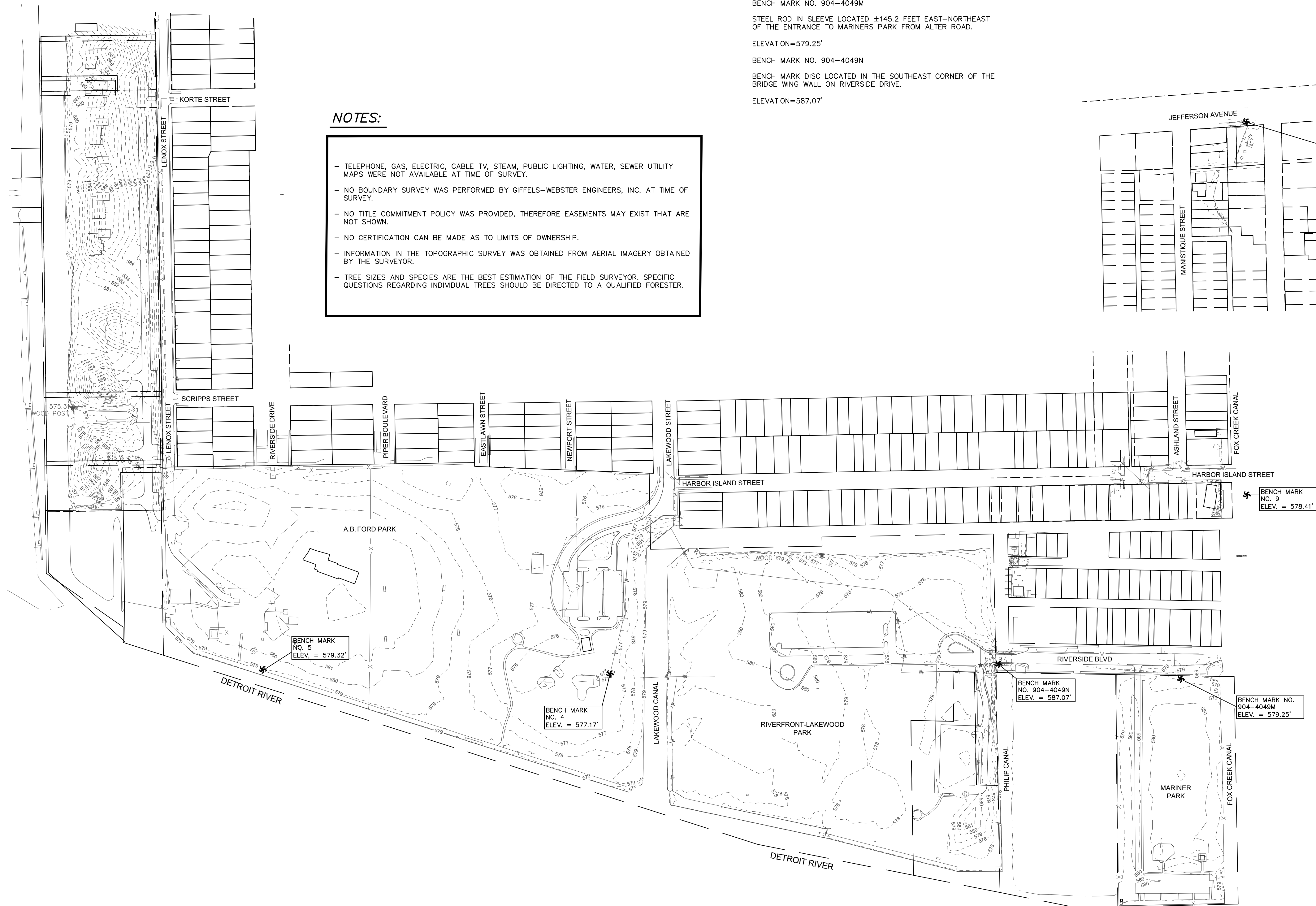
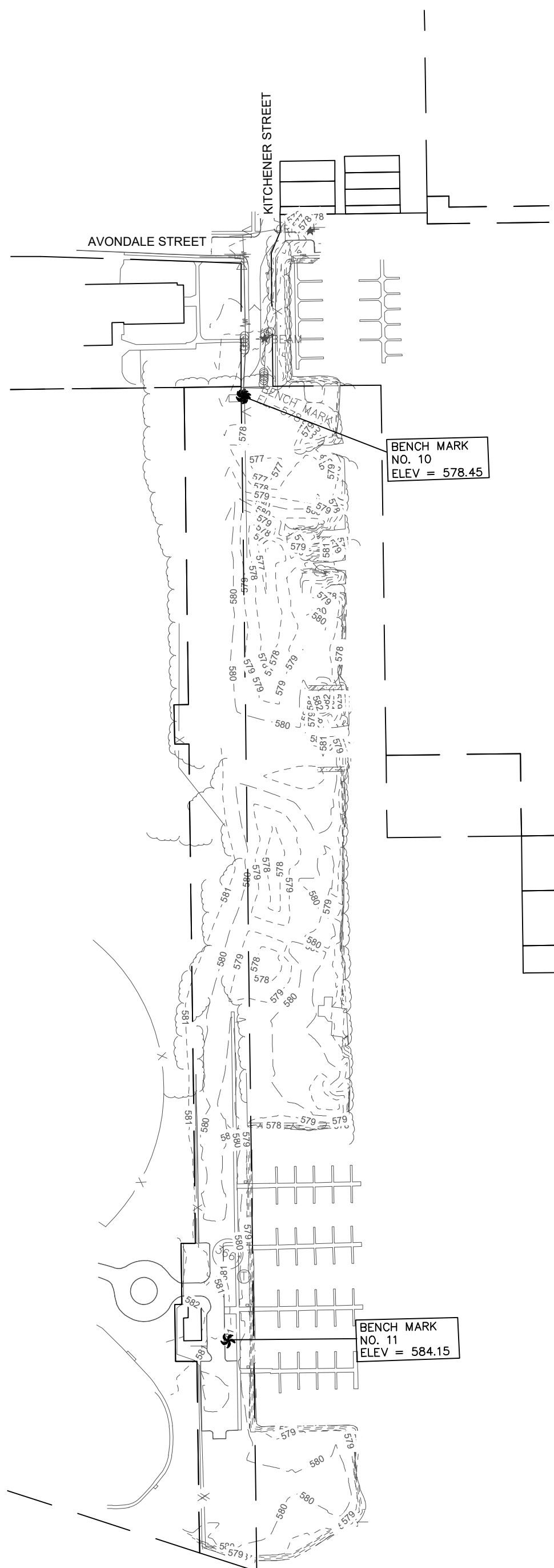
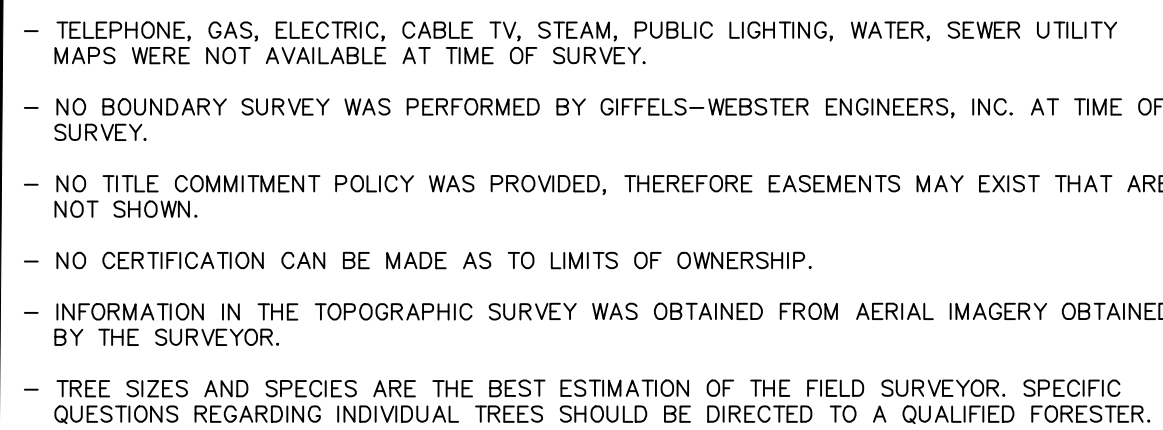
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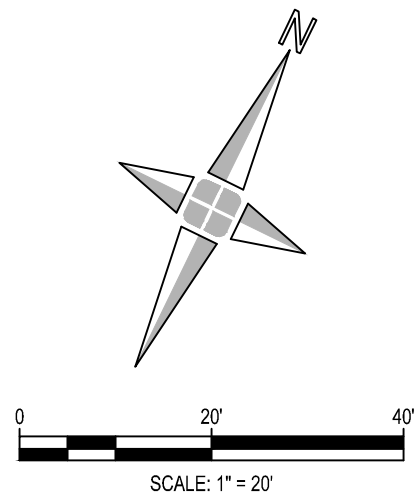


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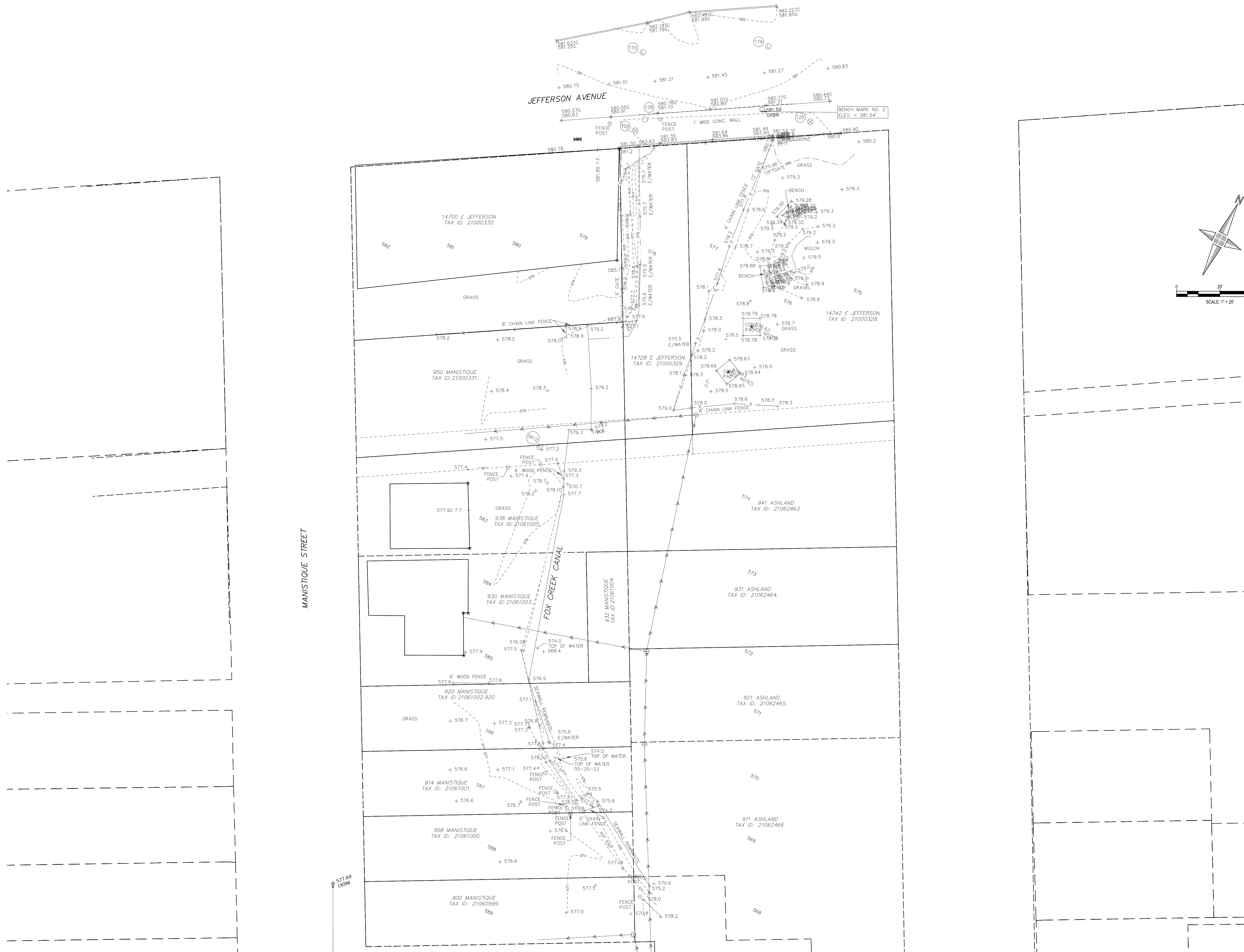
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DETROIT LOWER EAST SIDE
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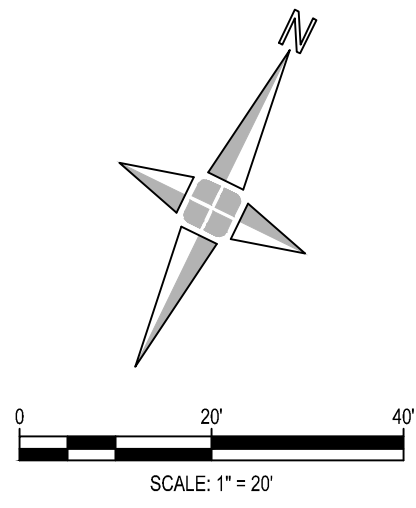
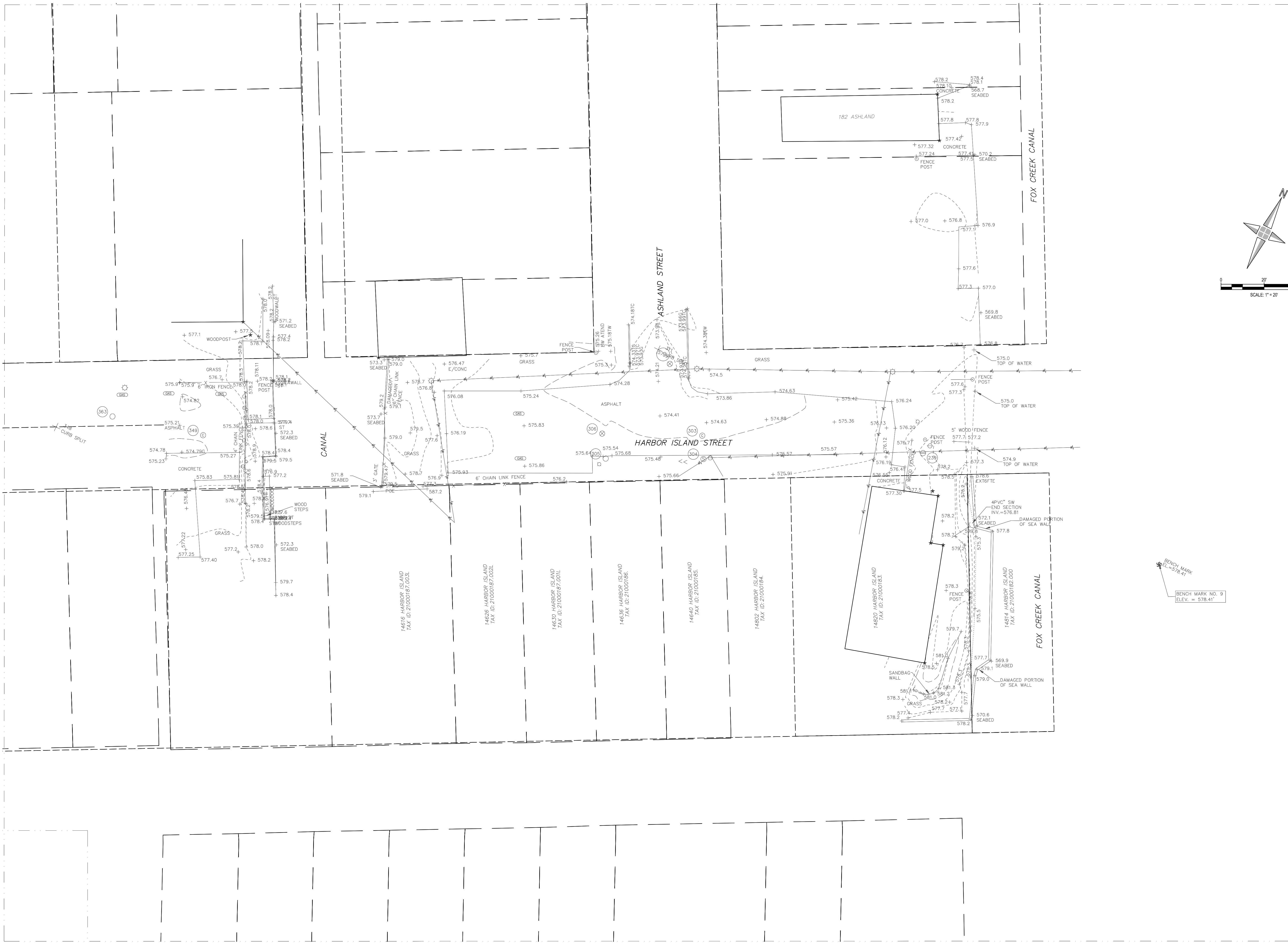
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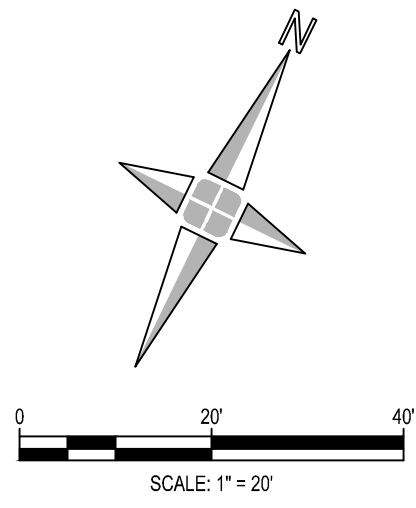
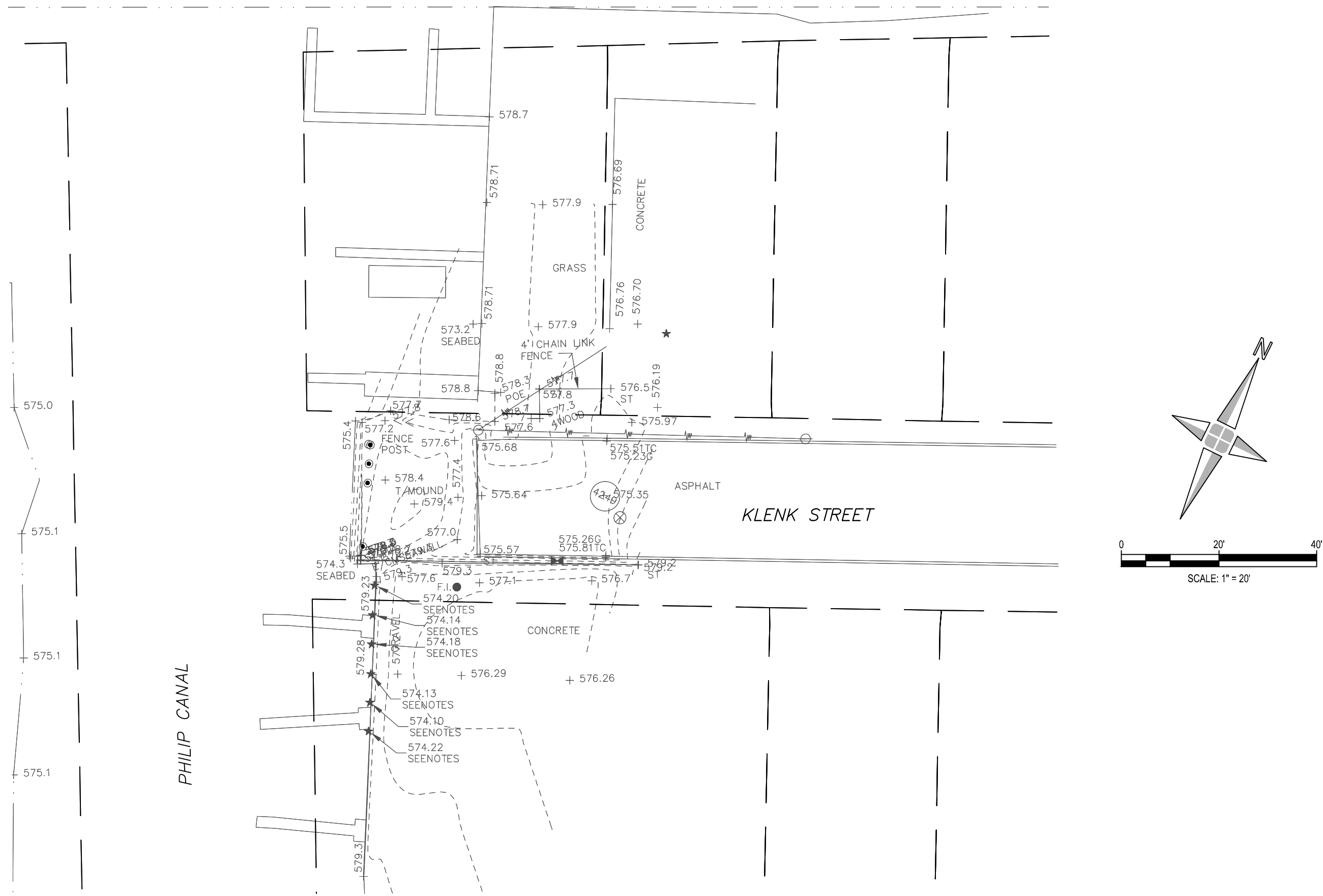
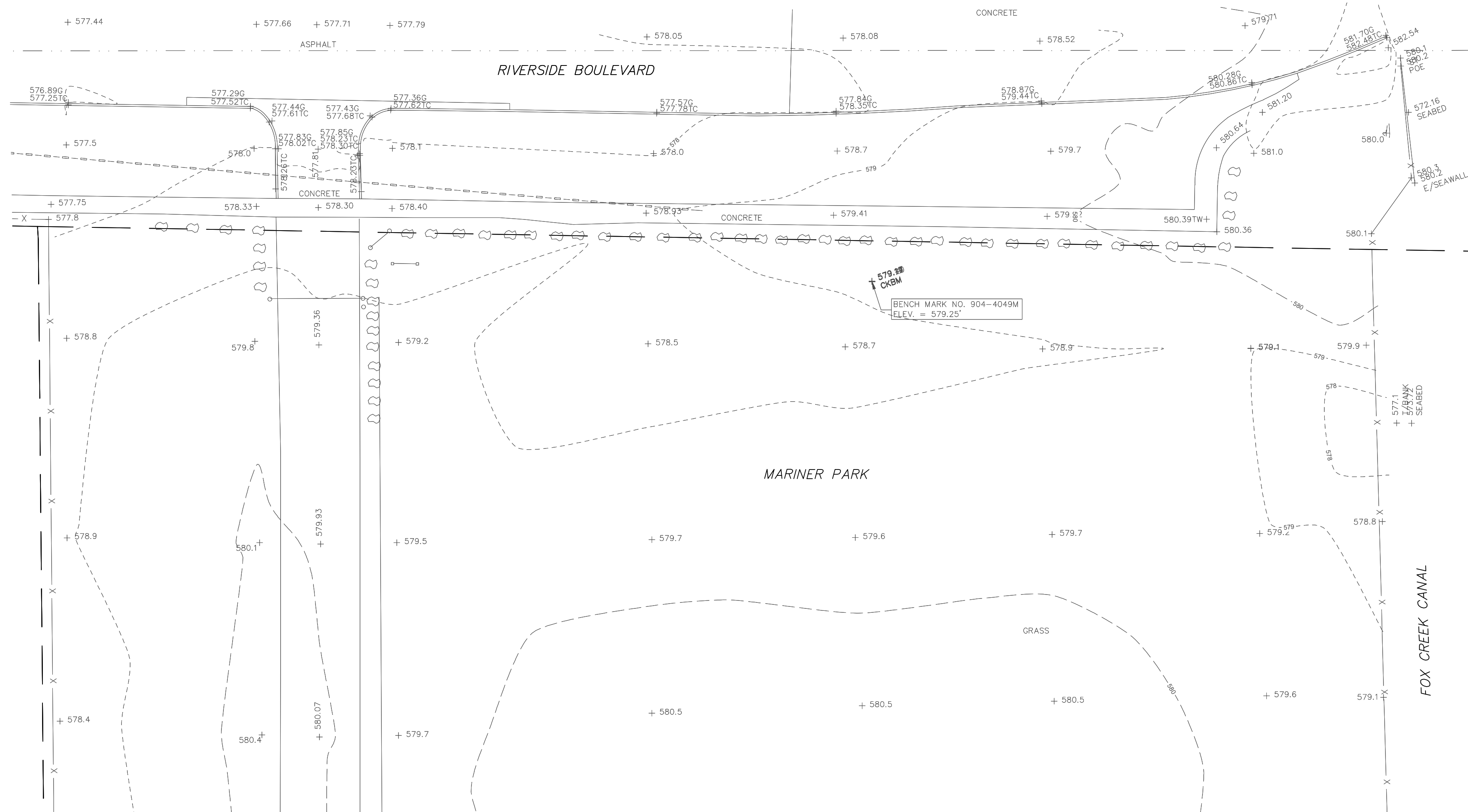
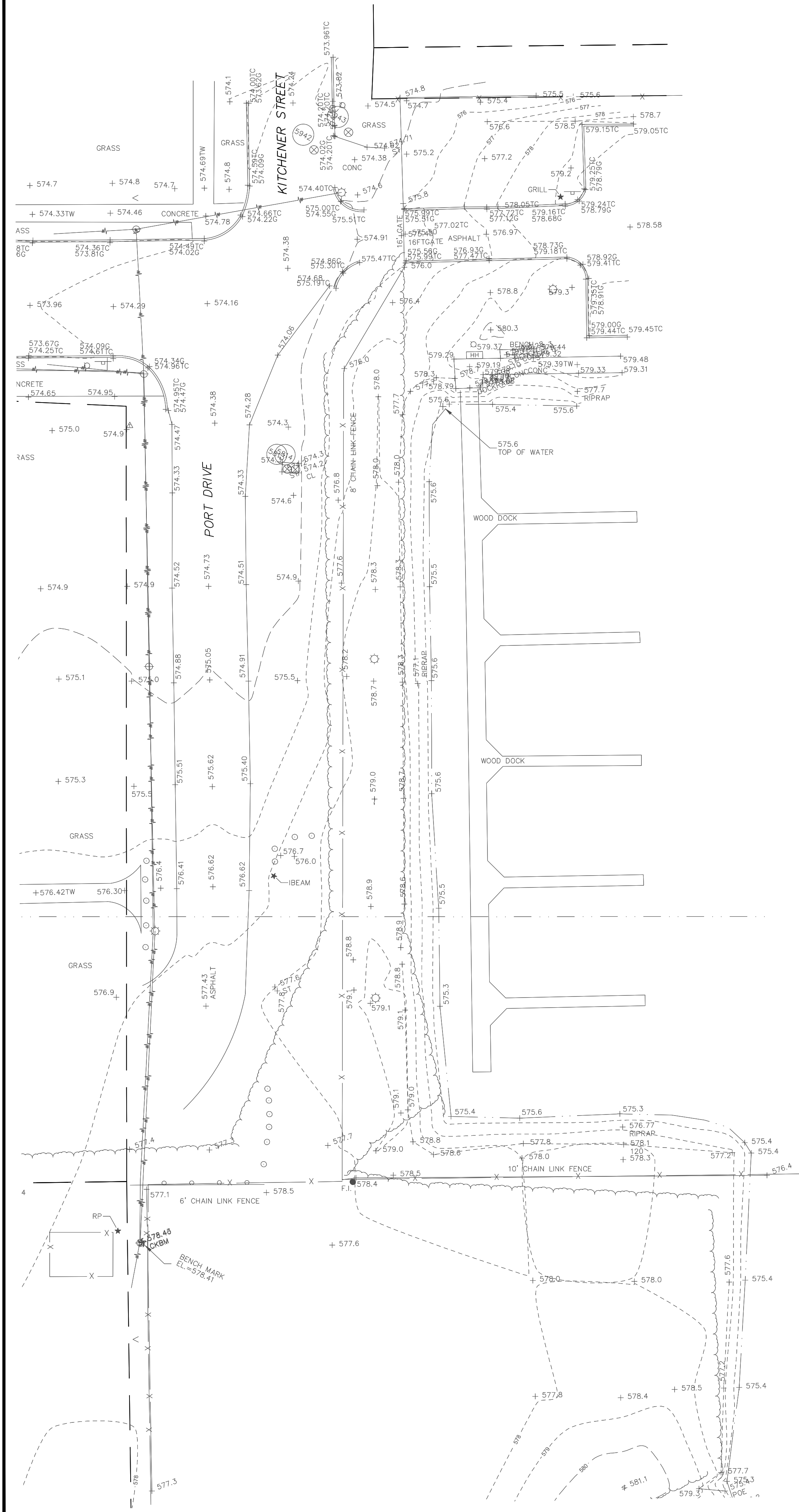
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CITY OF DETROIT
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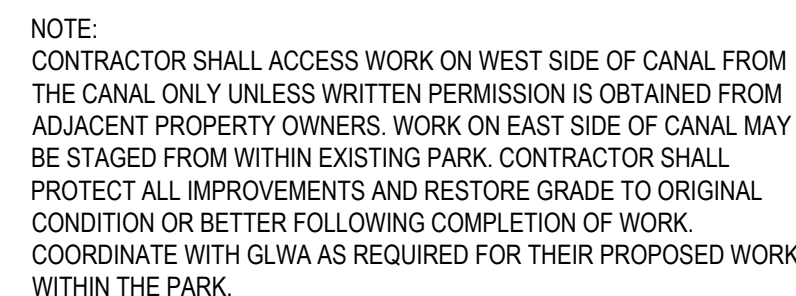
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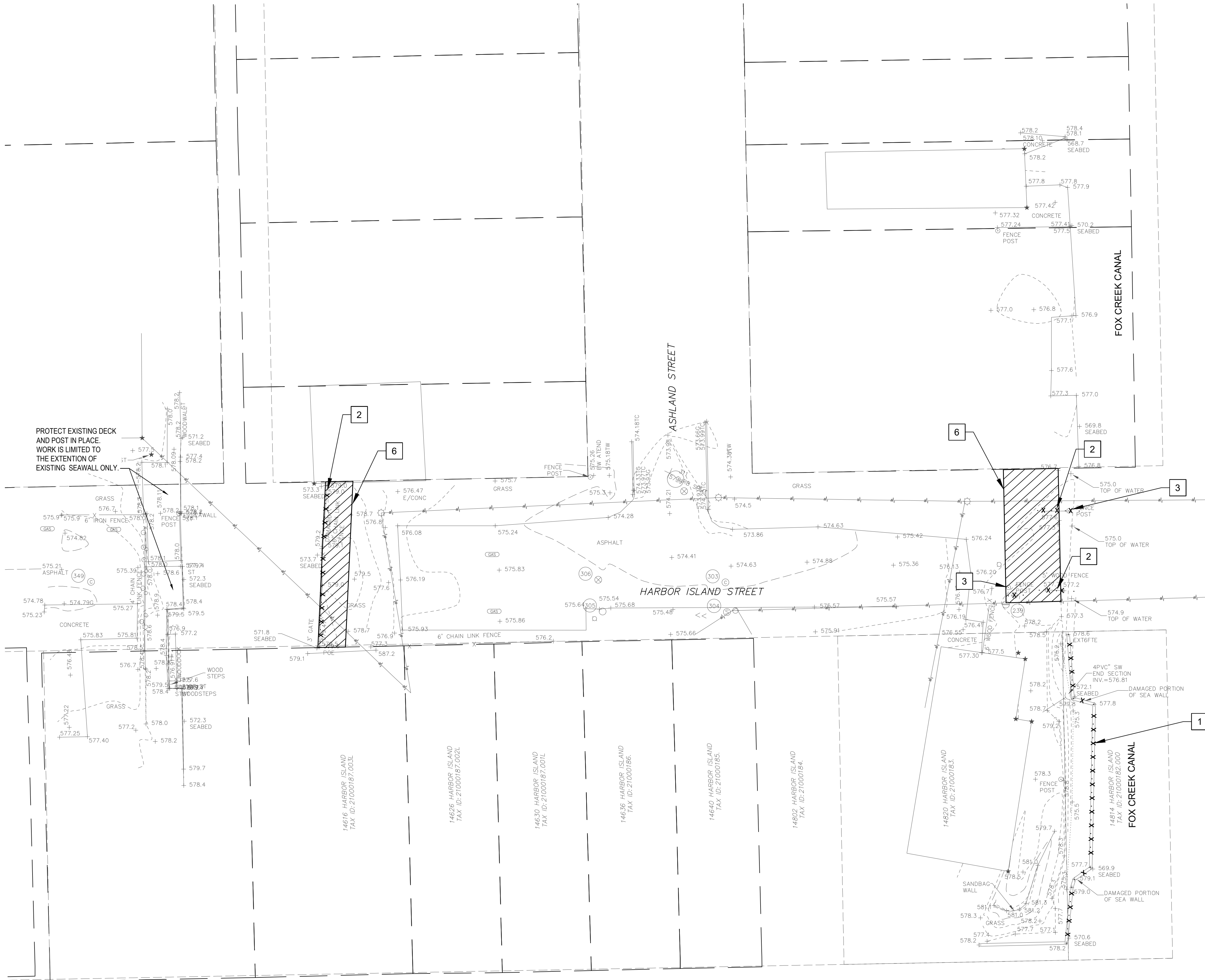


1	EXISTING SEA WALL, TO BE REMOVED - 29 FT
2	EXISTING FENCE, TO BE REMOVED - 133 FT
3	EXISTING FENCE POST, TO BE REMOVED
4	SAWCUT AND REMOVE EXISTING PAVEMENT
5	EXIST. BOULDERS REMOVE, SALVAGE AND REINSTALL
6	CLEARING, TREES, BRUSH AS NEEDED FOR CONSTRUCTION PER PLAN - 0.05 AC.
7	RELOCATE EXISTING PICNIC TABLE

REMOVE EXISTING SEA WALL / FENCE / FENCE POST · X · X · X · X · X · X · X · X



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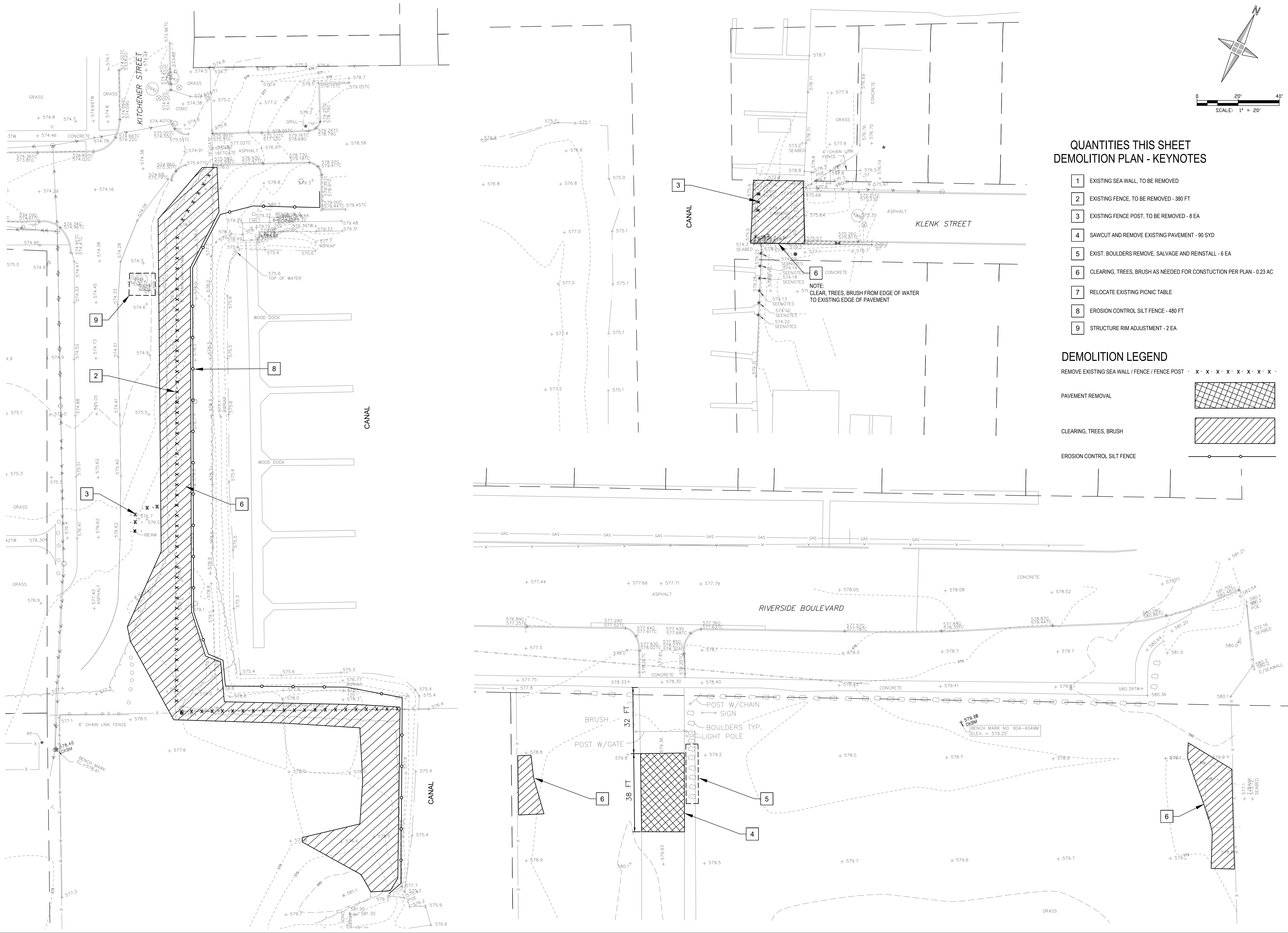




DEMOLITION & SOIL EROSION PLAN

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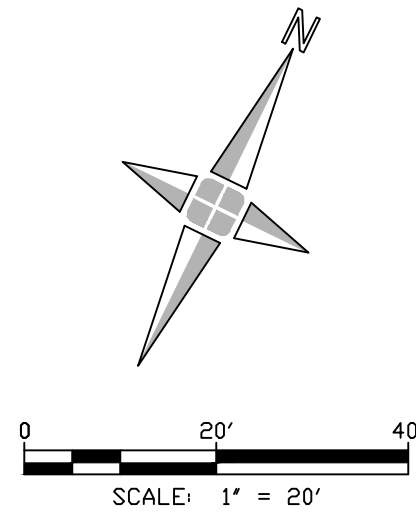
GRADING & SEA WALL PLAN

DETROIT LOWER EAST SIDE
FLOOD MITIGATION PROJECT

CITY OF DETROIT
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QUANTITIES THIS SHEET IMPROVEMENT - KEYNOTES

- 1 PROVIDE AND INSTALL NEW SEAWALL - 227 FT
- 2 PROVIDE AND INSTALL NEW SEAWALL EXTENSION

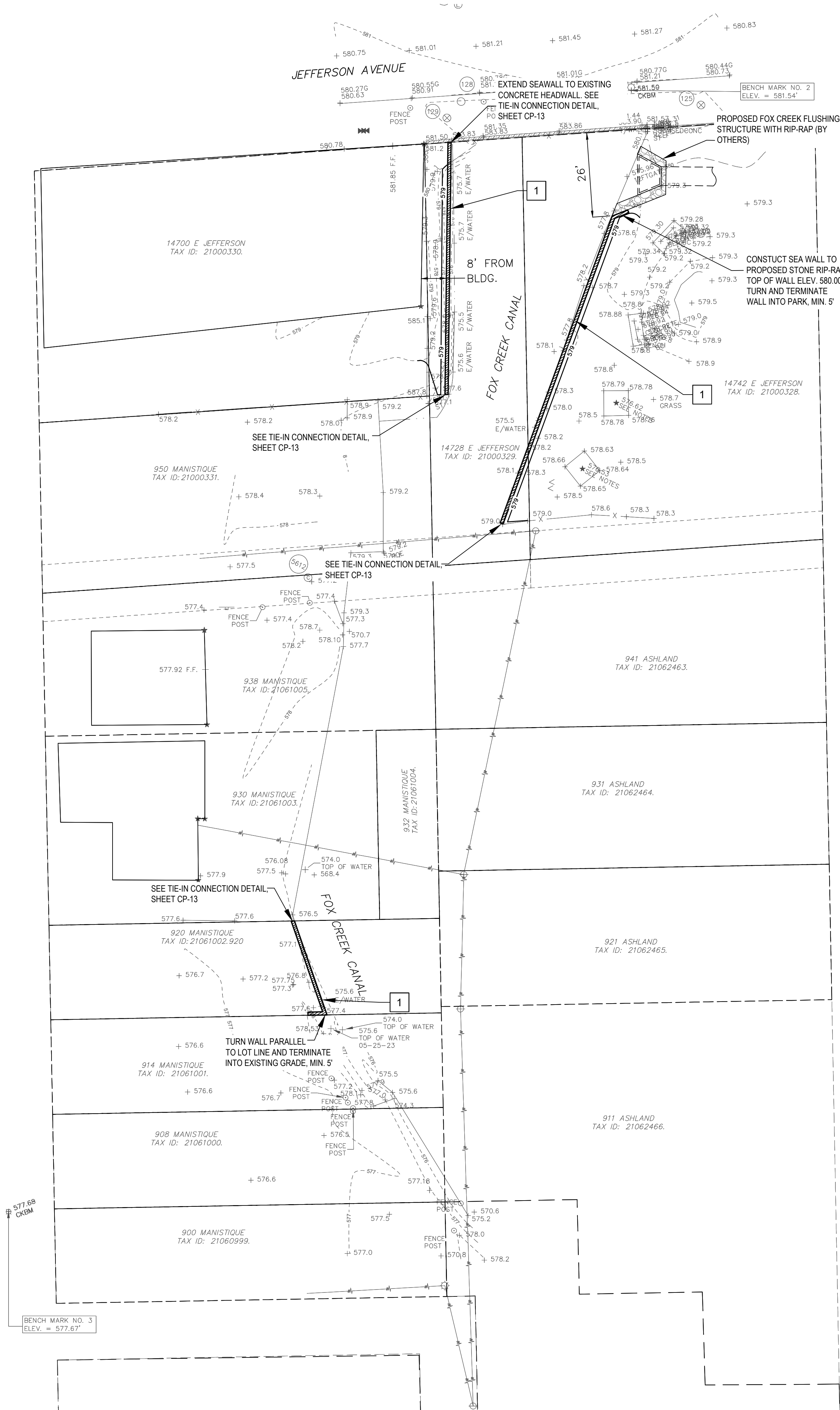
RESTORATION - LUMP SUM

LEGEND

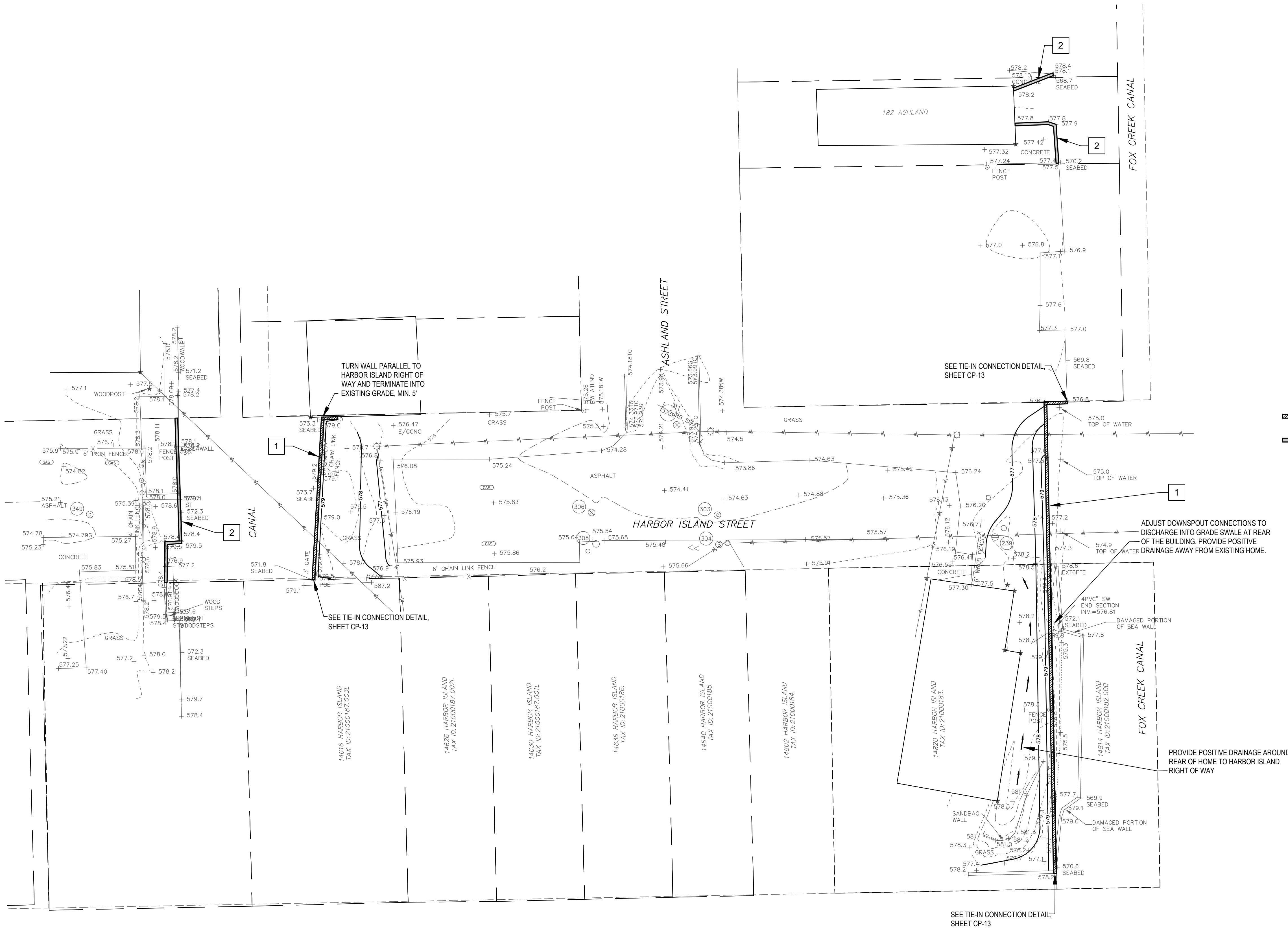
SEE SHEET CP-13 FOR ALL SEAWALL DETAILS

- NEW SEAWALL, TOP OF WALL
ELEVATION = 580.00'
- NEW CONCRETE BARRIER WALL ON TOP
OF EXISTING WALL, ELEVATION = 580.00'

MANISTIQUE STREET



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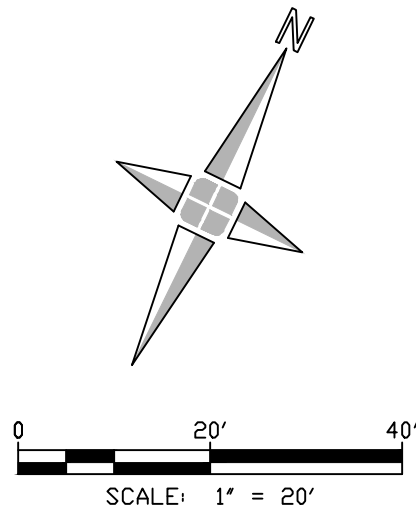
QUANTITIES THIS SHEET IMPROVEMENT - KEYNOTES

- 1 PROVIDE AND INSTALL NEW SEAWALL - 248 FT
- 2 PROVIDE AND INSTALL NEW SEAWALL EXTENSION - 113 FT

RESTORATION - LUMP SUM

LEGEND

- SEE SHEET CP-13 FOR ALL SEAWALL DETAILS
- NEW SEAWALL, TOP OF WALL
ELEVATION = 580.00'
- NEW CONCRETE BARRIER WALL ON TOP
OF EXISTING WALL, ELEVATION = 580.00'



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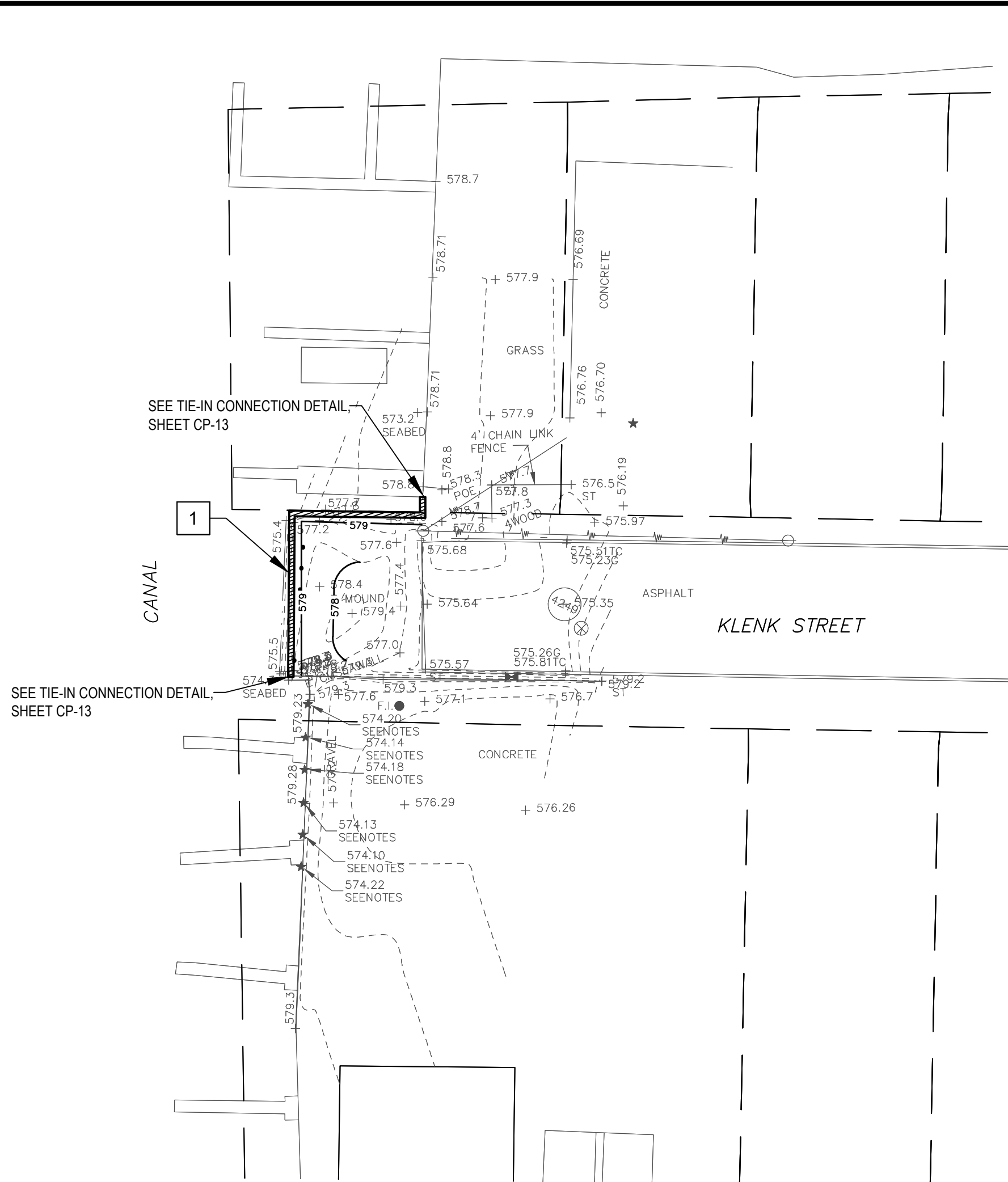
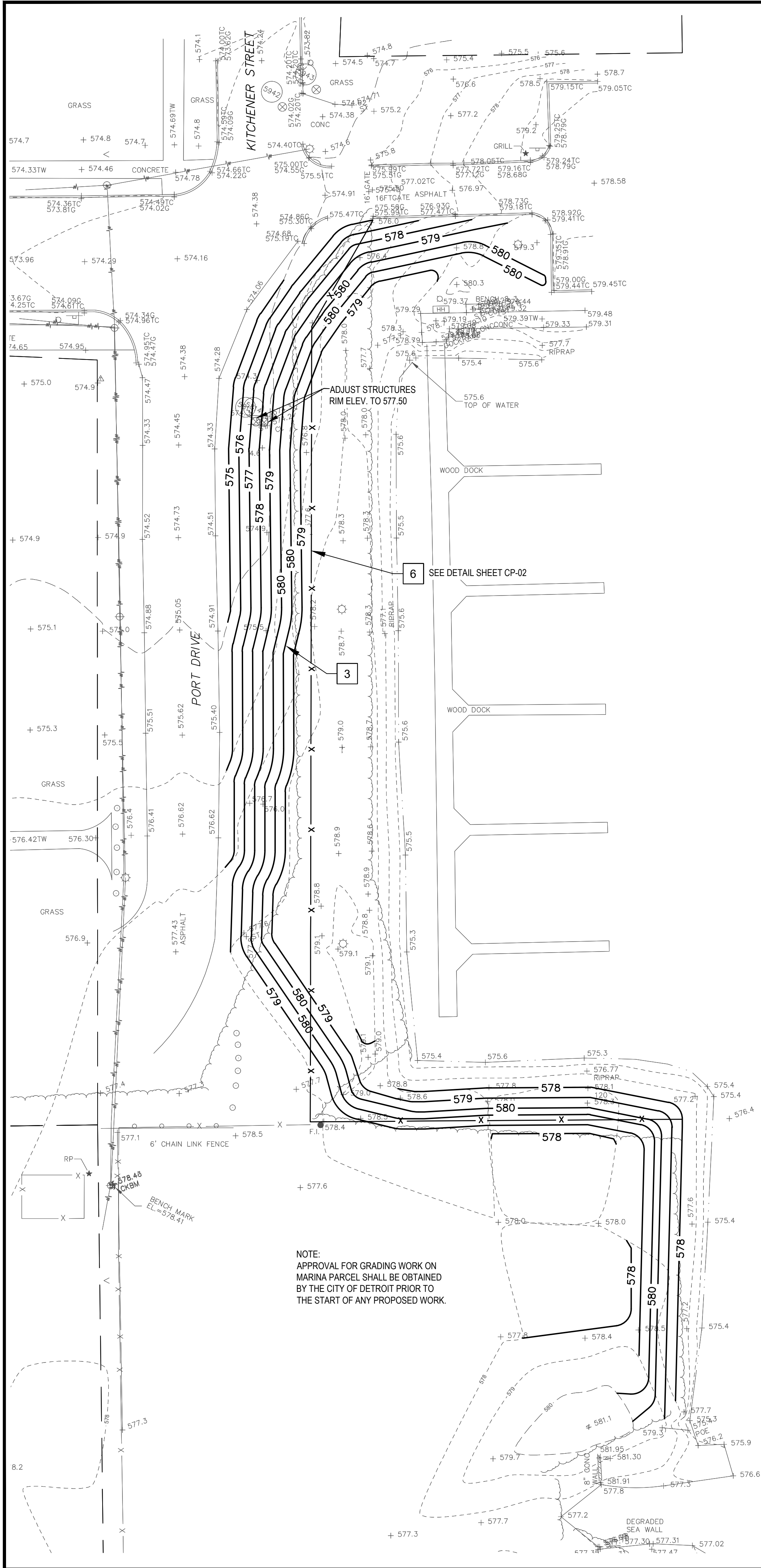
GRADING & SEA WALL PLAN

DETROIT LOWER EAST SIDE
FLOOD MITIGATION PROJECT

CITY OF DETROIT
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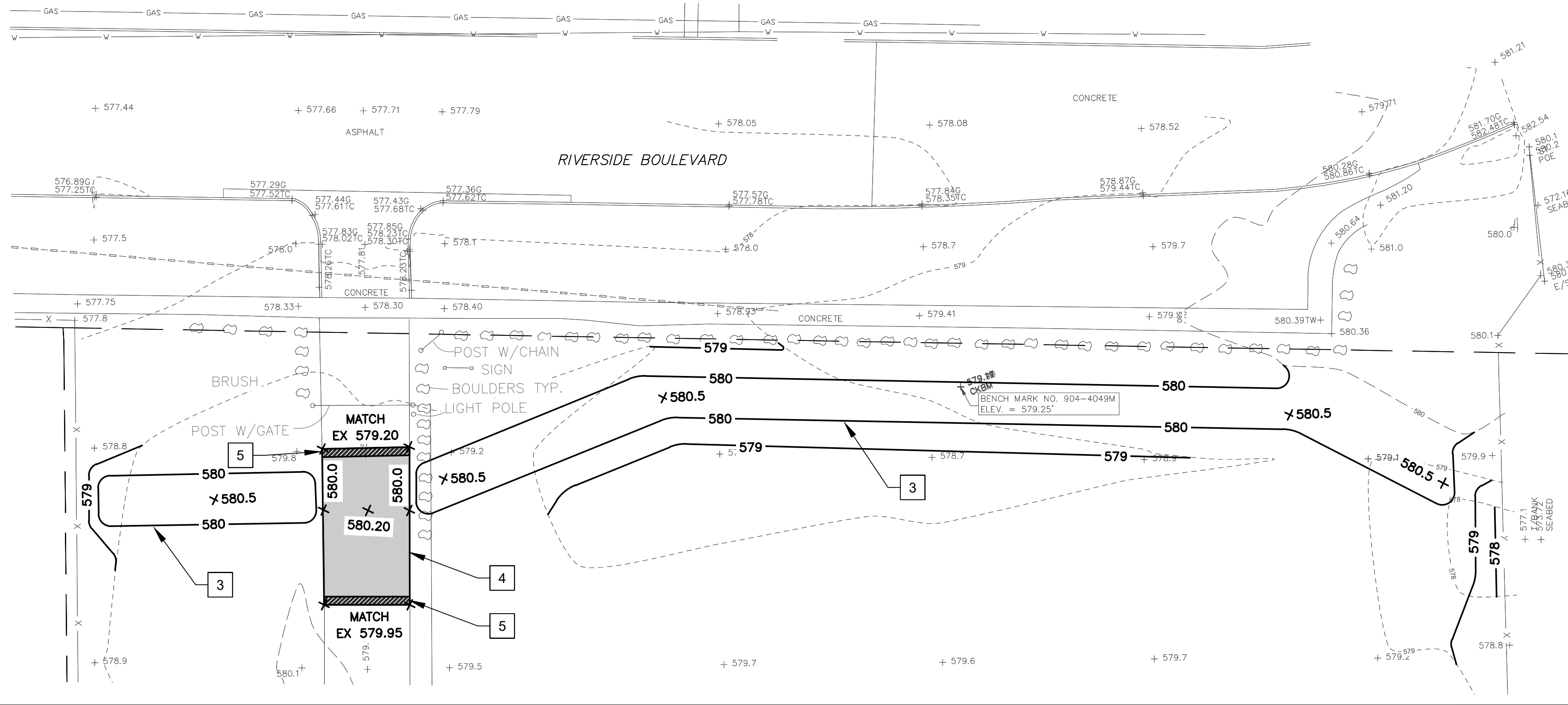
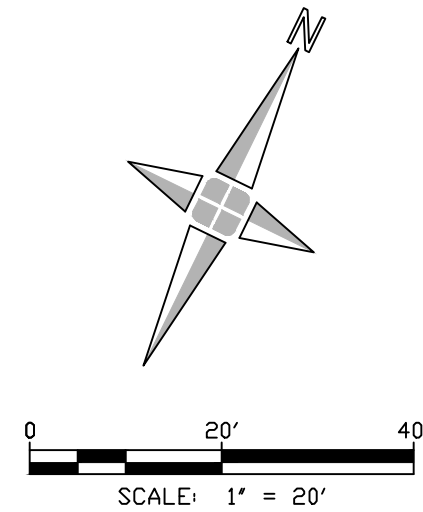


QUANTITIES THIS SHEET IMPROVEMENT - KEYNOTES

- 1 PROVIDE AND INSTALL NEW SEAWALL - 58 FT
- 2 PROVIDE AND INSTALL NEW SEAWALL EXTENSION
- 3 PROVIDE AND INSTALL APPROVED MATERIAL EARTH BERM - LUMP SUM
- 4 PROVIDE AND INSTALL HMA PAVEMENT / AGGREGATE BASE - 94 SYD
- 5 PROVIDE AND INSTALL 2 FT BUTT - JOINT - 40 FT
- 6 8 FT TALL CHAIN LINK FENCE - 380 FT

LEGEND

- SEE SHEET CP-13 FOR ALL SEAWALL DETAILS
- NEW SEAWALL, TOP OF WALL
ELEVATION = 580.00'
 - NEW CONCRETE BARRIER WALL ON TOP
OF EXISTING WALL, ELEVATION = 580.00'



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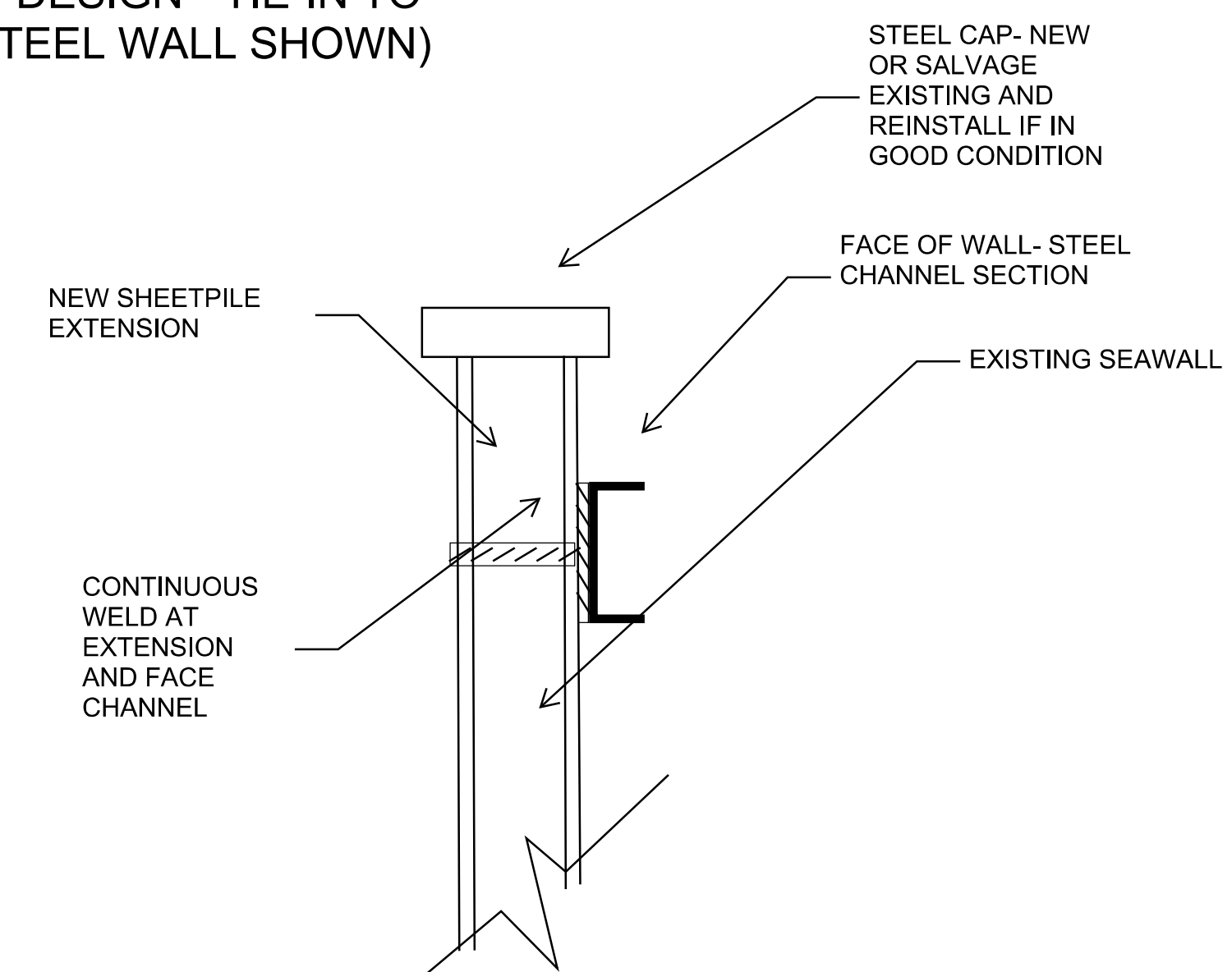
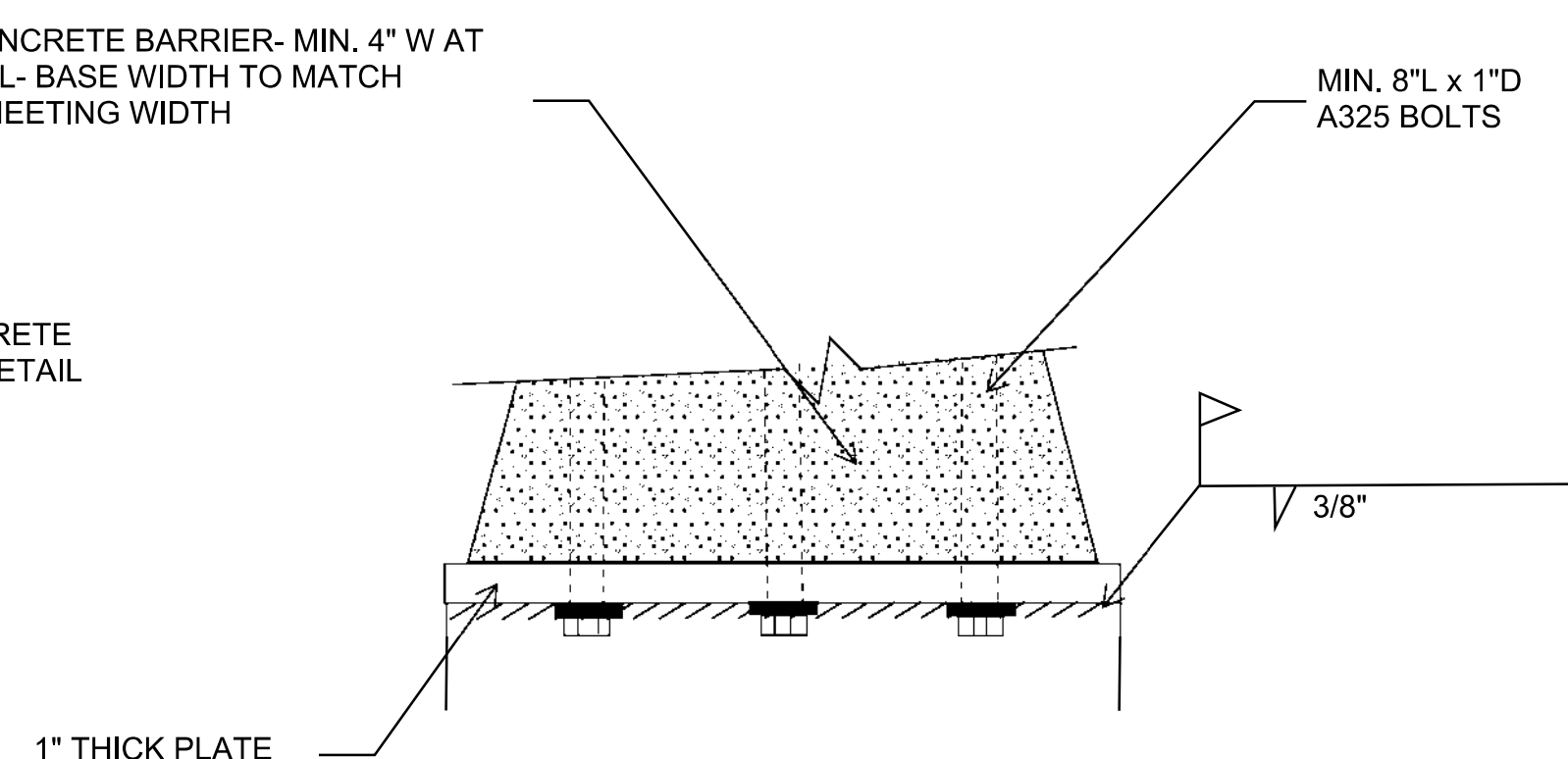
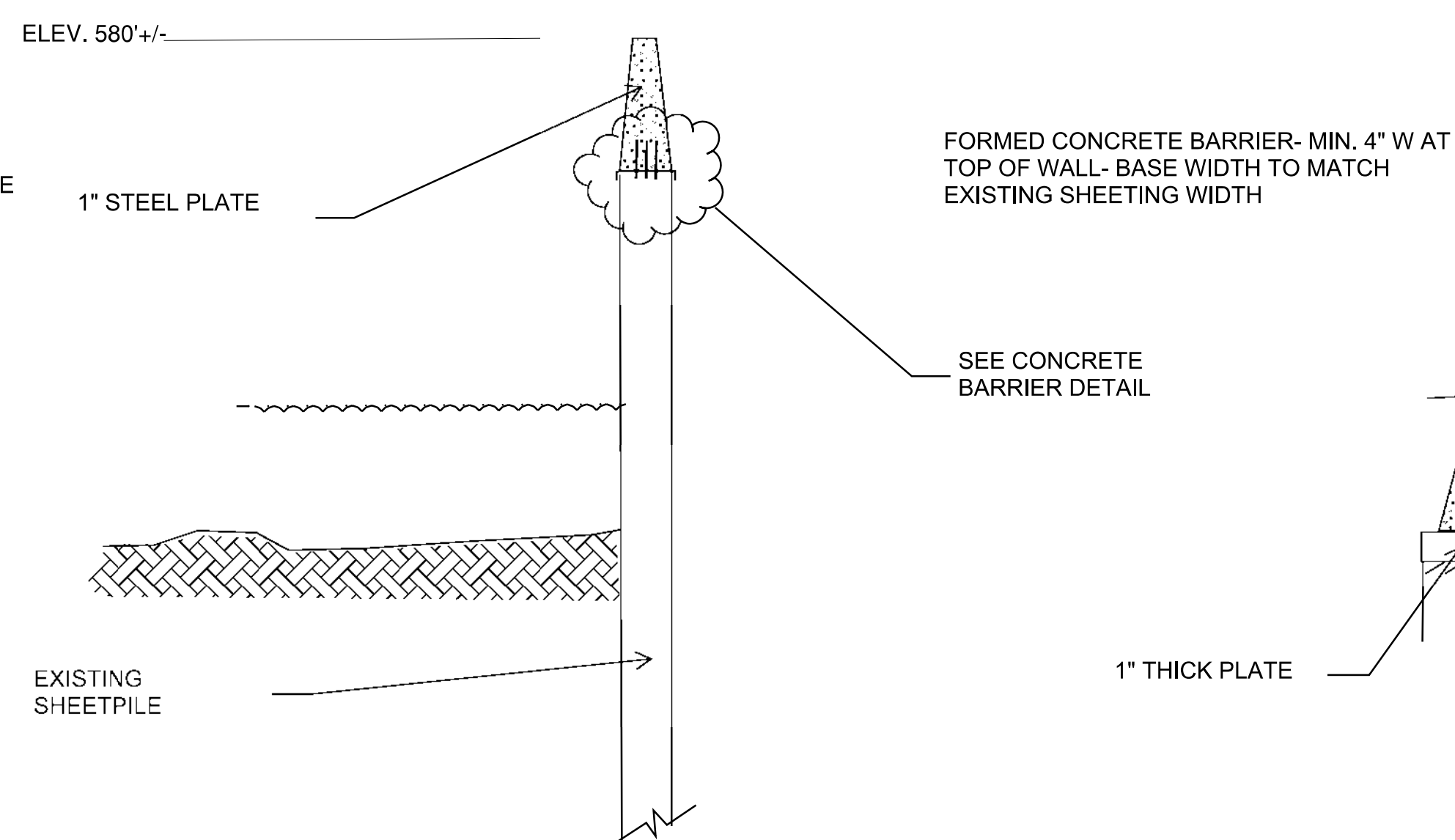
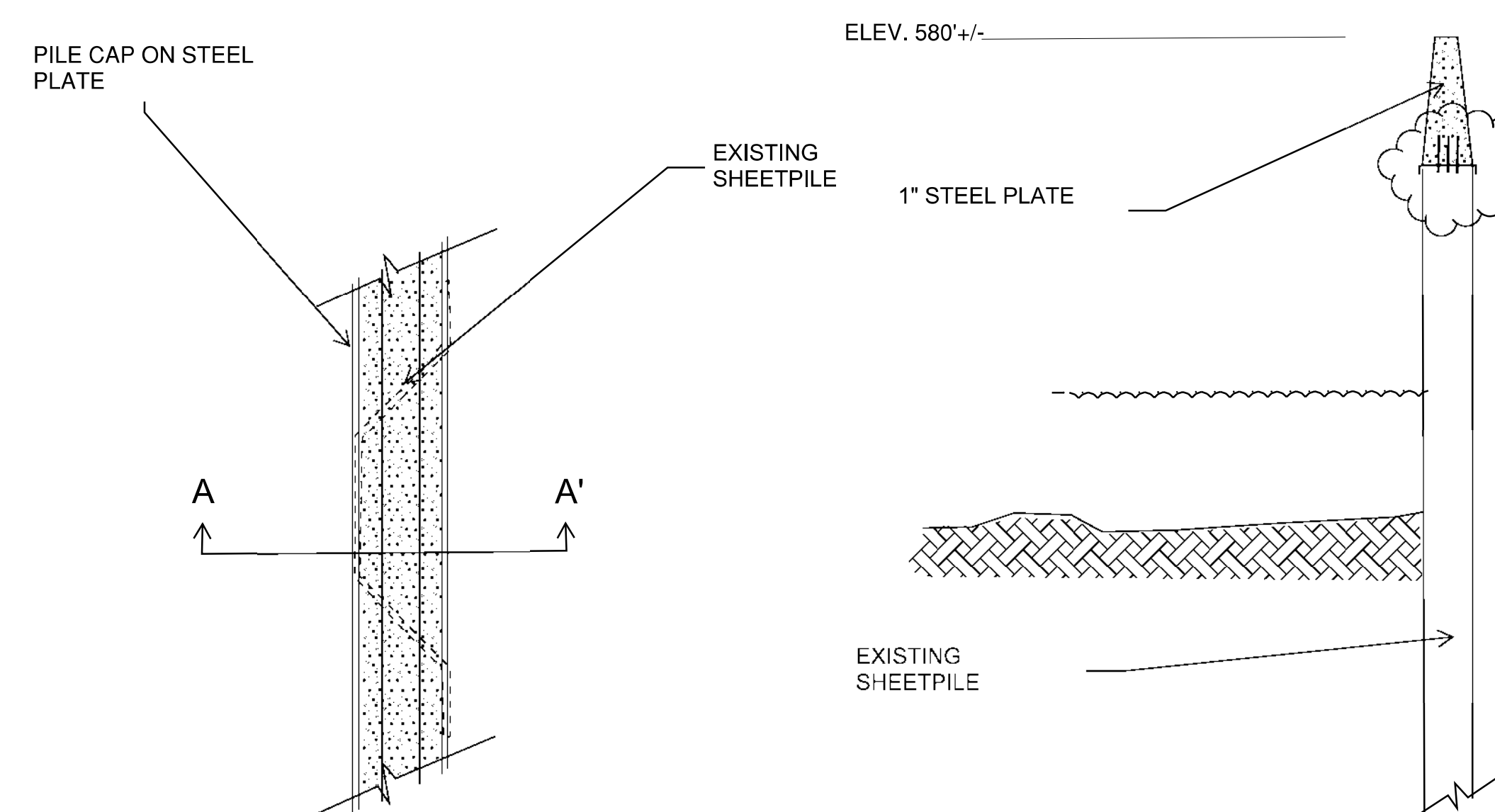
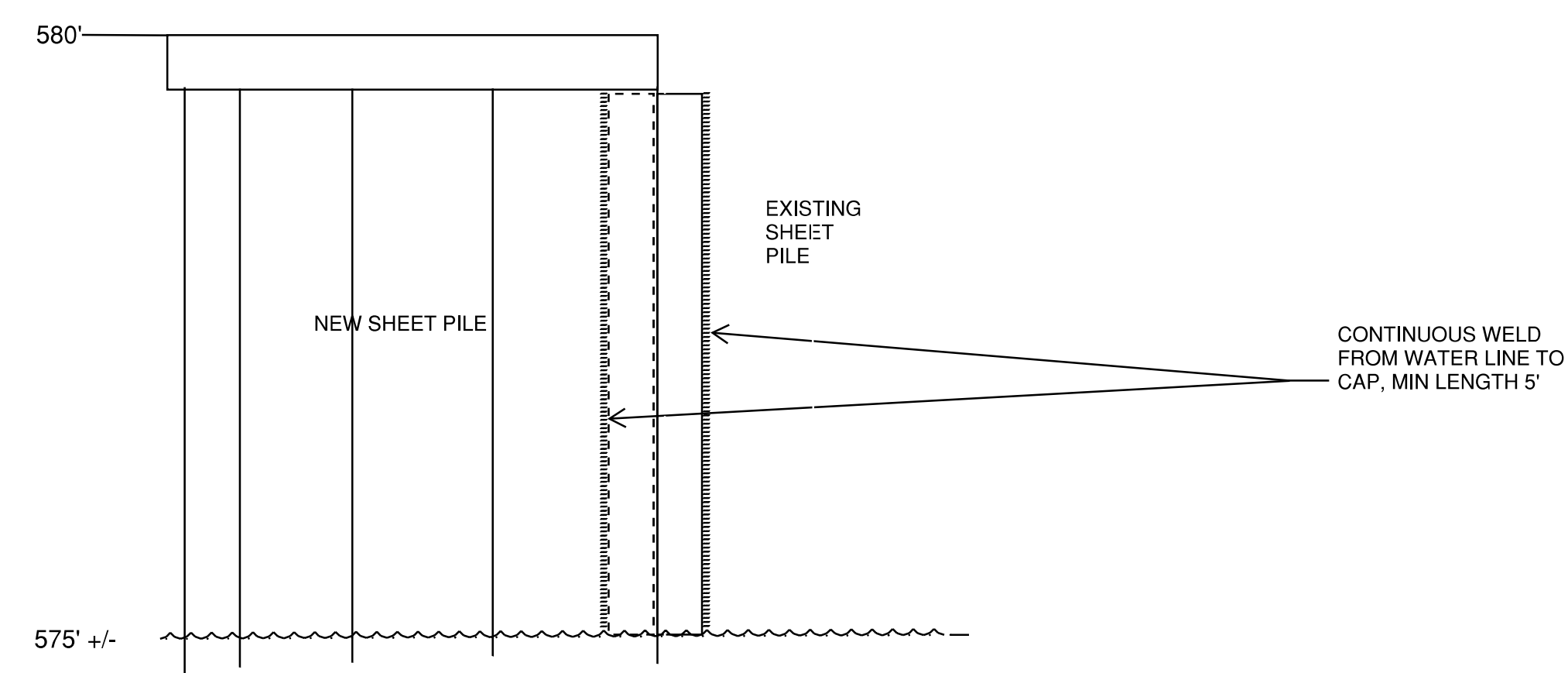
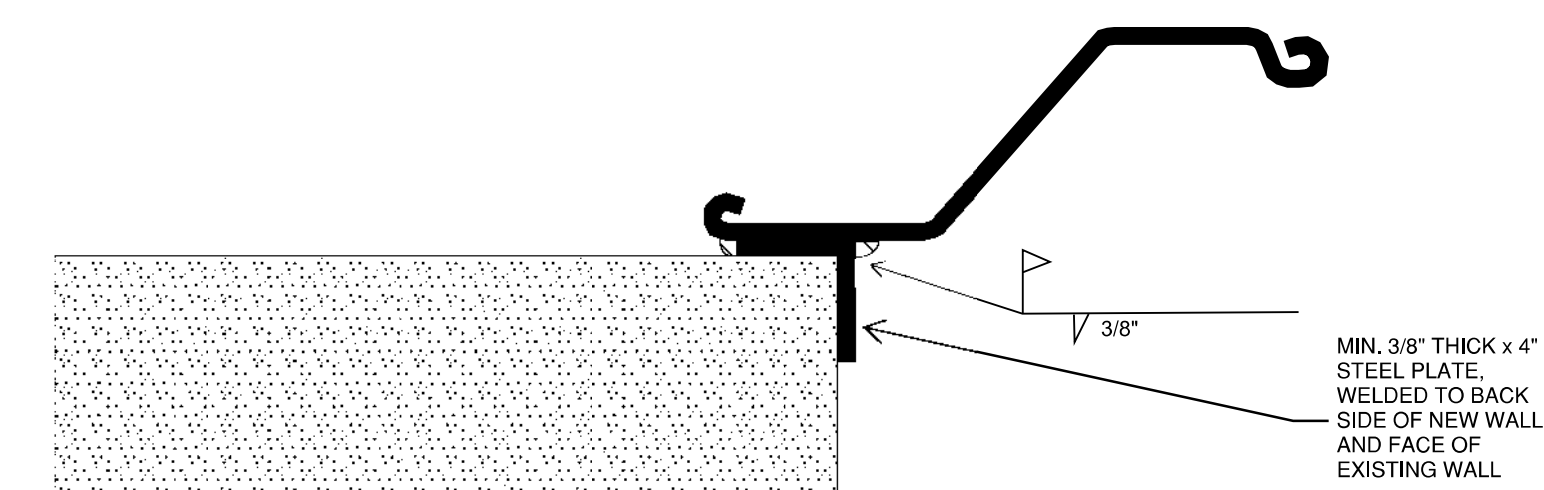
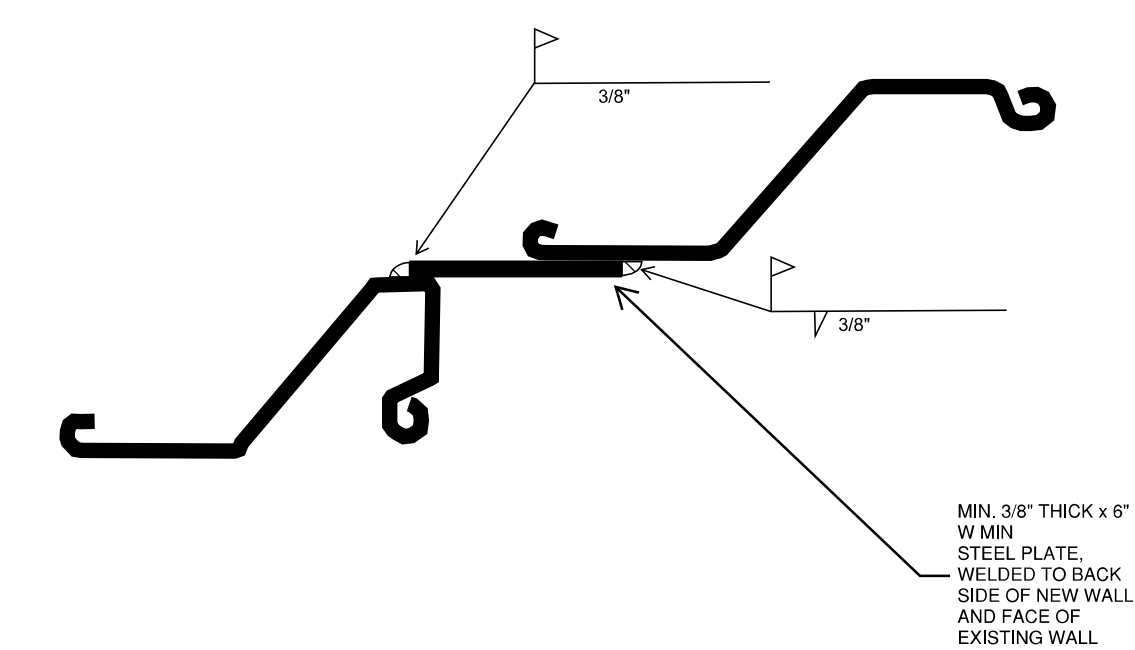
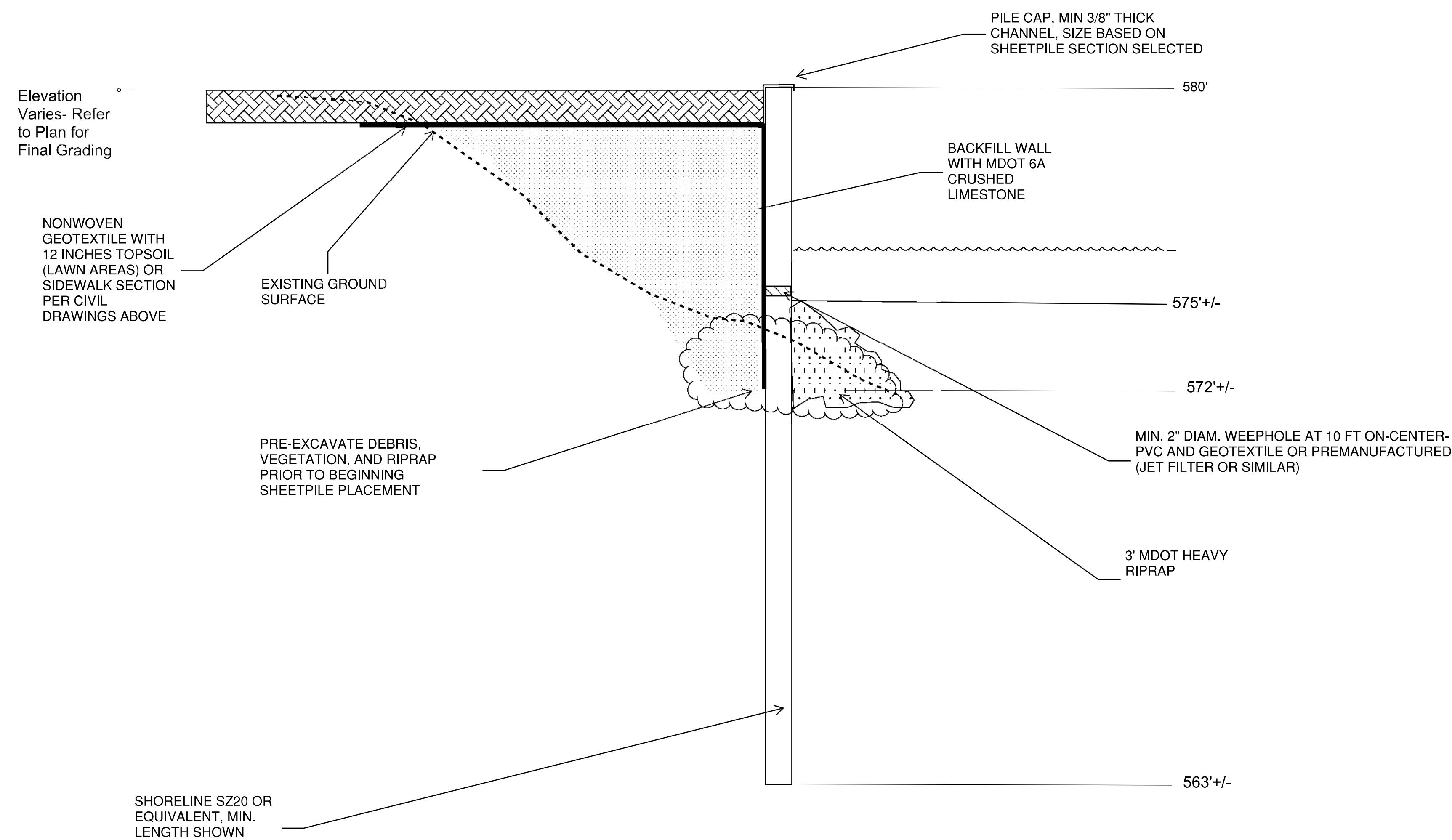
GRADING & SEA WALL PLAN

DETROIT LOWER EAST SIDE
FLOOD MITIGATION PROJECT

CITY OF DETROIT
WAYNE COUNTY
MICHIGAN

Date: 06.13.23
Scale: 1"=20'
Sheet: CP-12
Project: 20370.00D

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Orientation

Scale

NONE

Project
CITY OF DETROIT FLOOD
MITIGATION - LOWER EAST SIDE

Project Location
DETROIT, MICHIGAN

Sheet Name
SHEETPILE DETAILS

Engineer's Seal



Revisions			
REV	ISSUED FOR	DATE	BY
	OWNER REVIEW	07/21/23	LMU
	REVISION 1	08/18/23	LMU
	REVISION 2	09/12/23	LMU

Date	07/21/23

SME Project No.	091506.00

Project Manager:
L. JOHNSON

Designer: L.JOHNSON

CADD:

Checked By: THB

Sheet No. CP-13

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PLOT DATE: Dec 09, 2016 - 2:48pm - MANDRILLA FILE LOCATION: \\Sme-inc\p2\WIP\055161.16\CAD\DWG\5rev4\Drawing2.dwg

SEAWALL MAINTENANCE

SEAWALLS SHALL BE MAINTAINED AND INSPECTED IN GENERAL ACCORDANCE WITH US ARMY CORPS OF ENGINEERS PUBLICATION "EM 1110-2-2502- FLOODWALLS AND OTHER HYDRAULIC RETAINING WALLS", DATED AUGUST 1, 2022. SEAWALLS SHALL BE INSPECTED BY AN EXPERIENCED ENGINEER OR ENGINEERING TECHNICIAN OR BY A MARINE CONTRACTOR. IF FUTURE CONSTRUCTION IS PLANNED ON CITY-OWNED PARCELS, CONSIDER A DEVELOPMENT RIDER FOR AFFECTED PROPERTIES SUCH THAT REVIEW OF SEAWALLS, TIEBACKS, DEADMEN, DOCKS AND ASSOCIATED STRUCTURES ARE PROPERLY PROTECTED OR ARE REPLACED IF DAMAGED DURING CONSTRUCTION OPERATIONS. CORROSION

- UNPROTECTED EXPOSED STEEL EXPOSED TO FRESH WATER ERODES AT RATES OF 2 TO 5 MILS PER YEAR, WITH THE "SPASH ZONE" BETWEEN STILL WATER ELEVATION AND UPPER LEVEL WAVE ACTION MOST CRITICAL. MAINTAINING COATINGS AND REGULARLY REVIEWING THE SPLASH ZONE IS CRITICAL IN PREVENTING SEAWALL FAILURE DUE TO CORROSION.
- PROTECT SEAWALLS FROM CORROSION USING APPLICATION OF A PROTECTANT TO FIGHT RUST. SKYCO OSPHO (OR SIMILAR) OR MARINE-GRADE PAINT CAN BE USED FOR THIS PURPOSE.
- TO REDUCE CORROSION, WELL-DRAINING MATERIAL MUST BE PROVIDED IMMEDIATELY BEHIND THE WALL. DO NOT BACKFILL WALLS WITH CLAY OR ORGANIC SOILS. DRAINAGE MATERIAL SHOULD CONSIST OF CRUSHED NATURAL AGGREGATE OR WELL-DRAINING NATURAL SAND (MDOT CLASS II).

LANDSCAPING, USAGE, AND DRAINAGE

- SELECT PLANTINGS CAREFULLY. DO NOT PLANT LARGE TREES OR HEAVY VEGETATION NEAR THE SEAWALLS. IN ADDITION TO POTENTIALLY CAUSING DIRECT DAMAGE THE TREES OR VEGETATION CAN OBSTRUCT VISUAL INSPECTIONS.
- REMOVE EXISTING TREES AND SCRUB BEHIND NEW SEAWALLS AND EXISTING SEAWALLS TO BE MAINTAINED. IN GENERAL, TREES SHOULD BE LOCATED NO CLOSER TO SEAWALLS THAN THE EDGES OF CANOPIES AT MATURITY.
- MAINTAIN (I.E., CUT) LAWN AREAS ALONG THE INBOARD SIDE OF THE WALLS. ESTABLISH GROUND SURFACE ELEVATIONS TO MAINTAIN DRAINAGE AWAY FROM THE WALL AND PREVENT PONDING OF WATER BEHIND THE WALL.
- INFILL ANY SUBSIDENCE OR EROSION AT THE INBOARD SIDE OF THE WALL REGULARLY TO PREVENT "BIRD BATHS" BEHIND THE WALL.
- MAINTAIN SIDEWALKS SUCH THAT SIDEWALKS SLOPE DOWNWARD AWAY FROM SEAWALLS. SEAL SLAB JOINTS AND ADDRESS CRACKS AS THEY DEVELOP TO PRVENT EROSION FROM STORMWATER INFILTRATION.
- DISCOURAGE BURROWING ANIMALS FROM TAKING UP RESIDENCE ALONG THE INBOARD SIDE OF THE WALL. LOOK FOR BURROWS OR DENS BELOW SURFACE STRUCTURES.
- EXERCISE CARE WHEN EXCAVATING BEHIND THE WALLS TO PREVENT DAMAGING TIEBACKS AND DEADMEN AND ANY UTILITIES (E.G. ELECTRICAL LINES). FUTURE CONSTRUCTION SHOULD CONSIDER THE WHOLE SEAWALL STRUCTURE INCLUDING THE RODS AND DEADMEN.
- DO NOT ALLOW UTILITIES TO ABUT OR TIE INTO SEAWALLS. GUYED INSTALLATIONS SHOULD NOT BE ANCHORED TO SEAWALLS OR DEADMEN.
- WHERE WATERCRAFTS ARE MOORED ALONG THE SEAWALL, INSTALL AND MAINTAIN MOORING POSTS IN THE CHANNEL AND BETWEEN SLIPS AND PLACE FENDERS ALONG THE FACE OF THE WALL TO REDUCE THE RISK OF IMPACT DAMAGE.

INSPECTION AND MAINTENANCE

RISK ASSESSMENT, INCLUDING ECONOMIC RISK AND HAZARD IDENTIFICATION, IS NOT INCLUDED IN ENGINEERING AND MAINTENANCE.

- ESTABLISH A BASELINE SURVEY FOR EXISTING WALLS INCLUDING HORIZONTAL AND VERTICAL ALIGNMENT OF TOPS OF WALLS AND GROUND SURFACE ELEVATIONS WITHIN 15 FEET INBOARD OF THE BACK OF WALL.
- MAINTAIN AN ACTIVE MAP OF TIEBACK AND DEADMAN LOCATIONS. ONCE EVERY 10 YEARS, VERIFY THE ANCHORS FOR THE TIEBACKS ARE STILL IN PLACE BY OBSERVING THE EXPOSED FACE OF THE SEAWALL AND PULLING ON THE HEAD TO SEE THEY ARE STILL SECURE.
- PERFORM MAINTENANCE, REPAIR, AND REPLACEMENT IN A MANNER THAT DOES NOT CREATE ADDITIONAL SYSTEM RISK. CORRECT DEFICIENCIES AS SOON AS OBSERVED IN A MANNER THAT DOES NOT INCREASE THE RISK OF FAILURE NEAR THE REPAIR AREA.
- INSPECT SEAWALLS ON, AT MINIMUM, A 2-YEAR CYCLE OR AFTER CRITICAL EVENTS SUCH AS PROLONGED HIGH WATER, VESSEL IMPACT, UTILITY FAILURE, OR DAMAGE TO TIEBACKS AND/OR DEADMAN. ONCE EVERY 10 YEARS, REVIEW SUBMERGED PORTIONS OF SEAWALLS, INCLUDING ANY RIPRAP.
- SEAL MINOR CRACKS/GAPS IN THE SEAWALL AND ANY HARD SURFACING (CONCRETE SLABS) WITH MARINE GROUT. CRACKS AND GAPS CAN LEAD TO PIPING OF SOIL, ACCELERATED CORROSION AROUND THE CRACK/GAP, EROSION, AND SINKHOLES ALONG THE INBOARD SIDE OF THE WALL.
- REPAIR TEARS AND BREAKS IN STEEL WALLS BY WELDING. APPLY CORROSION PROTECTION AFTER REPAIR.
- VERIFY TIEBACK AND CAP ATTACHMENTS ARE TIGHT, FLUSH/LEVEL WITH SHEETING, AND IN GOOD CONDITION. REPLACE CORRODED TIES, PLATES AND NUTS. REATTACH LOOSE STEEL SEAWALL CAP SECTIONS USING AN APPROPRIATE WELDING METHOD. REPAIR SPALLED OR DAMAGED CONCRETE CAPS.
- WHERE PROPERLY DESIGNED AND INSTALLED WEEPS OR STORM OUTLETS EXTEND THROUGH THE FACE OF THE WALL, VERIFY WEEPS AND OUTLETS ARE FREE OF DEBRIS. REMOVE AND CLEAN/REPLACE FILTERS IF THEY BECOME CLOGGED.
- WHERE STORM SEWERS EXTEND THROUGH THE WALL, VERIFY THE OUTLET IS INTACT AND DOES NOT APPEAR TO HAVE SHIFTED/FAULTED/SEPARATED FROM THE WALL. SEAL GAPS BETWEEN STORM SEWERS AND THE SEAWALL WITH MARINE GROUT OR WATERPROOF FLEXIBLE SEALANT.
- INSPECT EXPOSED WALLS FOR CORROSION (E.G., PEELING PAINT, FLAKING OF EXPOSED STEEL, EXCESSIVE LOSS OF STEEL CROSS SECTIONS, ETC.). TREAT EXCESSIVE CORROSION AS SOON AS IT IS OBSERVED. USE A RUST INHIBITOR COATING OR RUST CONVERTER PRODUCT SAFE FOR USE AROUND WATERWAYS, SUCH AS CORROSEAL OR SIMILAR. WHERE DAMAGE FROM VESSEL IMPACT IS OBSERVED, REPAIR PROMPTLY.
- REVIEW AREAS BEHIND WALLS FOR DEPRESSIONS AND ANIMAL BURROWS. INVESTIGATE THE CAUSE OF THE DEPRESSIONS (I.E., LOSS OF GROUND THROUGH OPENINGS IN THE SEAWALL) AND REPAIR CAUSE OF DEPRESSIONS. FILL ANIMAL BURROWS WITH PEA GRAVEL, SAND, OR GROUT WHERE OBSERVED.
- REGULARLY REVIEW THE TOPS AND FACES OF SEAWALLS TO FOR EVIDENCE OF EXCESSIVE LATERAL OR VERTICAL MOVEMENTS. VERIFY THEY ARE IN ALIGNMENT AND ARE NOT BOWING/TILTING OUTWARD AND/OR SETTLING. BULGING OR OUTWARD ROTATION IS OFTEN A SIGN THAT DEADMEN AND TIEBACKS HAVE BEEN DAMAGED. NOTE, ONCE THE SHEET PILING HAS MOVED IT IS VERY DIFFICULT TO PULL BACK INTO POSITION AND IT IS MUCH EASIER (AND LESS DISRUPTIVE) TO STABILIZE IN PLACE. ONCE EVERY 10 YEARS, UPDATE BASELINE SURVEY.
- WHERE RIPRAP IS PLACED, VERIFY RIPRAP IS PROPERLY MAINTAINED IN LOCATION AND POSITION. ICE BUILD-UP AND MOVEMENTS CAN SHIFT THE RIPRAP OVER SEVERAL SEASONS. RELOCATING THE RIPRAP OR ADDING NEW RIPRAP SHOULD BE EXPECTED FOR THE MOST EXPOSED AREAS.
- DO NOT DREDGE WITHOUT AN APPROVED DREDGING PLAN BY AN ENGINEER. SEAWALLS ARE DESIGNED FOR A MINIMUM EMBEDMENT AND REMOVAL OF MATERIAL BELOW THE DREDGE LINE CAN CAUSE THE WALL TO FAIL.

BERM/LAWN MAINTENANCE

BERMS SHALL BE INSPECTED AND MAINTAINED AS DETAILED HEREIN, AND AS OUTLINED IN THE "LEVEE OWNER'S MANUAL FOR NON-FEDERAL FLOOD CONTROL WORKS- THE REHABILITATION AND INSPECTION PROGRAM PUBLIC LAW-84-99" BY THE US ARMY CORPS OF ENGINEERS, DATED MARCH 2006. CONSIDER A DEVELOPMENT RIDER FOR AFFECTED PROPERTIES SUCH THAT FLOOD CONTROL BERMS ARE PROPERLY PROTECTED AND ARE REPAIRED OR REPLACED IF DAMAGED DURING CONSTRUCTION OPERATIONS.

CONSTRUCTION

- NEW FILL PLACED ON LEVEES/PLACED FOR CONSTRUCTION OF FLOOD CONTROL BERMS SHALL CONSIST OF CLEAN CLAY SOILS MEETING USCS CLASSIFICATION "CL". CLAYS IMPORTED TO THE SITE SHALL BE ANALYZED FOR IMPAC OF 3 INCHES IN DIAMETER. CORE MATERIAL SHALL HAVE AN ORGANIC CONTENT NOT EXCEEDING 3 PERCENT. THE MAXIMUM ORGANIC CONTENT DOES NOT APPLY TO TOPSOIL DRESSING.

- PLACE FILL IN UNIFORM LAYERS NOT EXCEEDING 9 INCHES IN LOOSE THICKNESS AND COMPACT WITH A SHEEPSFOOT ROLLER. COMPACT TO A MINIMUM OF 92% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR METHOD.

LANDSCAPING AND VEGETATION

- A VEGETATION FREE ZONE MUST BE MAINTAINED AS OUTLINED IN THE US ARMY CORPS OF ENGINEERS PUBLICATION "EM 1110-2-301". VEGETATION ON FLOOD CONTROL STRUCTURES SHALL BE LIMITED TO GRASS COVER.
- PROPERLY MAINTAIN GRASS COVER, PERIODICALLY MOW LEVEES. UNMAINTAINED/LONG GRASS CAN PROMOTE BRUSH OR SAPLING GROWTH, AND HIDE EVIDENCE OF ANIMAL ACTIVITY, CRACKING, OR LOCALIZED SLOUGHING. MAINTAIN A MINIMUM HEIGHT OF 3 INCHES, BUT NO MORE THAN 12 INCHES.

- CONTROL TREES, BRUSH, AND WEEDS. REMOVE SCRUB AND TREES WITH STEM/TRUNK DIAMETERS AT MATURITY OF 2 INCHES OR GREATER, INCLUDING ROOT BALLS. INFILL RESULTING VOIDS WITH LOW-PERMEABILITY FILL, SUCH AS CLAY, AND TOP WITH TOPSOIL AND SEED OR SOD TO PREVENT EROSION.

- FENCING SHALL NOT PENETRATE FLOOD CONTROL STRUCTURES.

REVIEW AND MAINTENANCE

- REGULARLY REVIEW AND MAINTAIN LEVEES AND BERMS. ASSIGN PERIODIC REVIEWS TO A RESPONSIBLE PARTY, SUCH AS A PARK MANAGER, URBAN FORESTER, OR OTHER KNOWLEDGEABLE STAFF. A THOROUGH REVIEW BY AN ENGINEER SHALL BE CONDUCTED EVERY 3 YEARS.
- PROMPTLY REPAIR AREAS DAMAGED BY EROSION INCLUDING GULLIES, SLOUGHS, AND SLOPE FAILURES. IF EROSION IS REGULARLY OBSERVED, PLACE SLOPE ARMOR.
- REVIEW FLOOD CONTROL STRUCTURES FOR ENCROACHMENT BY PARK PLANTINGS, OPERATIONS, OR ADJACENT LANDOWNERS.
- REMOVE DEBRIS AND FLOOD-DEPOSITED MATERIALS FROM OUTBOARD FACES OF FLOOD CONTROL STRUCTURES. DO NOT ALLOW ADJACENT PROPERTY OWNERS TO DISPOSE OF LAWN CLIPPINGS OR COMPOST ON FLOOD CONTROL STRUCTURES.
- INSPECT BERMS AND LEVEES FOR NESTING AND BURROWING ANIMALS. MAINTAIN AN ACTIVE ANIMAL ABATEMENT PROGRAM COMPLIANT WITH STATE OF MICHIGAN REGULATIONS, SUCH AS BAITING OR TRAPPING. THOROUGHLY EXCAVATE AND BACKFILL BURROWS WITH COMPACTED CLAY FILL OR INFILL WITH GROUT. PREVENT BEAVER ACTIVITY, AS DAMS CAN INCREASE EROSION AND RETAINED WATER CAN OVERTOP BERMS.
- WHERE RIPRAP OR SLOPE ARMOR IS PLACED, MAINTAIN LATERAL EXTENT AND ALIGNMENT. REMOVE ANIMAL NESTS AND BURROWS AND WEED OR SCRUB GROWTH WITHIN SLOPE ARMOR/RIPRAP.
- LIMIT VEHICLE USAGE ON BERMS/LEVEES AND INFILL RUTS, DEPRESSIONS, OR OTHERWISE DAMAGED AREAS PROMPTLY. RUTS OR DAMAGED AREAS PENETRATING SOD COVER MUST BE REPAIRED BY REMOVING SOD, INFILLING WITH COMPACTED CLAY FILL, AND REPLACING SOD/TOPSOIL AND VEGETATIVE COVER.
- WHERE SURFACE CRACKING IS OBSERVED, MONITOR DEVELOPMENT AND PROMPTLY REPAIR CRACKING UNRELATED TO SEASONAL SHRINK-SWELL. ENGAGE AN ENGINEER TO REVIEW FLOOD CONTROL STRUCTURES IF CRACKING OTHER THAN SHRINK-SWELL IS OBSERVED IN COMBINATION WITH EROSION AND/OR LOCALIZED SLOUGHING/SLOPE FAILURE.
- UTILITY PENETRATIONS ARE PROHIBITED. UTILITIES MUST BE INSTALLED BENEATH THE BASE OF THE FLOOD CONTROL STRUCTURE. UTILITIES INSTALLED POST-CONSTRUCTION MUST BE DONE SO UNDER THE OBSERVATION OF A GEOTECHNICAL ENGINEER, AND ENGINEERED FILL MUST CONSIST OF PROPERLY COMPACTED CLAY SOIL. ACCORDINGLY, UTILITIES SUSCEPTIBLE TO CORROSION SHOULD BE INSTALLED IN NON-REACTIVE CONDUIT, AS GRANULAR ENGINEERED FILL IS PROHIBITED.
- DO NOT ALLOW INBOARD INSTALLATION OF DRAINAGE. BERMS/LEVEES FOR THIS PROJECT ARE PLACED FOR CONTROL OF FLOOD EVENTS. IF PONDING OF WATER ON THE INBOARD SIDE OF THE LEVEE OCCURS, ALLOW WATER TO EVAPORATE NATURALLY. DO NOT ATTEMPT TO INSTALL DIVERSION DITCHES OR SUMPS, AS SUCH ACTIONS CAN DAMAGE THE INTEGRETTY OF THE FLOOD CONTROL STRUCTURE.
- REVIEW OUTBOARD FACES OF FLOOD CONTROL STRUCTURES FOR BOILS AFTER FLOOD EVENTS. IF BOILS ARE OBSERVED, REQUIRE AN ENGINEER REVIEW THE BERM/LEVEE TO DETERMINE IF REPAIRS OR ADDITIONAL EVALUATION IS NEEDED.
- WHERE FLOOD CONTROL STRUCTURES ARE LOCATED ALONG NAVIGABLE WATERWAYS, ENGAGE A GEOTECHNICAL ENGINEER TO VERIFY STRUCTURES WILL BE SUITABLY STABLE IF CANALS ARE DREDGED. DO NOT DREDGE OR EXTEND CANALS WITHOUT AN APPROPRIATE ENGINEERING EVALUATION.

SEAWALL NOTES

- PRE-EXCAVATE RIPRAP, TREES, AND OTHER DEBRIS WITHIN THE SEAWALL ALIGNMENT PRIOR TO BEGINNING DRIVING OPERATIONS.
- INSTALL NEW SEAWALLS WHERE NOTED. SEAWALLS SHALL BE HOT-ROLLED SECTION WITH MINIMUM SECTION MODULUS 17.5 IN3 PER FOOT. SHORELINE SZ20 MEETS THE MINIMUM REQUIREMENT.
- SEAWALL SECTION AND EMBEDMENT ACCOUNTS FOR LONG-TERM SECTION LOSS DUE TO CORROSION. SECTIONS OTHER THAN THAT PROVIDED FOR THIS BASIS OF DESIGN WILL REQUIRE SECTION-SPECIFIC ANALYSIS TO BE PROVIDED BY CONTRACTOR AND SUBMITTED TO ENGINEER FOR REVIEW.
- NEW SEAWALLS SHALL BE TIED INTO ADJACENT WALLS SUCH THAT NO GAP BETWEEN THE WALLS IS PRESENT FROM THE WATER LINE TO THE TOP OF WALL. BASIS OF DESIGN DETAILS ARE PROVIDED. FIELD MANUFACTURING WILL BE REQUIRED, AND CONTRACTOR MAY PROPOSE ALTERNATES.
- PILE CAP SHALL BE MINIMUM ¾-INCH THICK STEEL CHANNEL SECTION, SIZED APPROPRIATELY TO THE SHEET PILE SECTION INSTALLED. PILE CAP SHALL BE WELDED TO BACK AND FACE EDGE OF SHEET PILE, ¾-INCH CONTINUOUS WELD.
- WHERE EXISTING WALLS ARE IN GOOD CONDITION, REMOVE EXISTING CAPS (WHERE PRESENT), AND INSTALL CONCRETE BARRIER WALL.
- BACKFILL ALL SEAWALLS WITH MDOT CLASS II SAND COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD.
- IN LIEU OF SAND BACKFILL, WALLS MAY BE BACKFILLED WITH MDOT 6A CRUSHED AGGREGATE.
- PLACE NONWOVEN GEOTEXTILE (MIRAFI 150N OR EQUIVALENT) ALONG FACE OF WALL, EXTENDING VERTICALLY ALONG BACK SIDE OF WALL, AND EXTENDING ABOVE TOP OF SAND OR AGGREGATE WALL BACKFILL, EXTENDING MINIMUM 3 FEET BEYOND INBOARD EDGE OF EXCAVATION. PLACE 12 INCHES OF TOPSOIL OVER SEPARATION FABRIC AND SEED AND MULCH PER CIVIL ENGINEER'S DETAIL.
- PLACE 3 FEET MINIMUM MDOT HEAVY RIPRAP AT FACE OF SEAWALL FOR EROSION CONTROL.

ALTERNATES

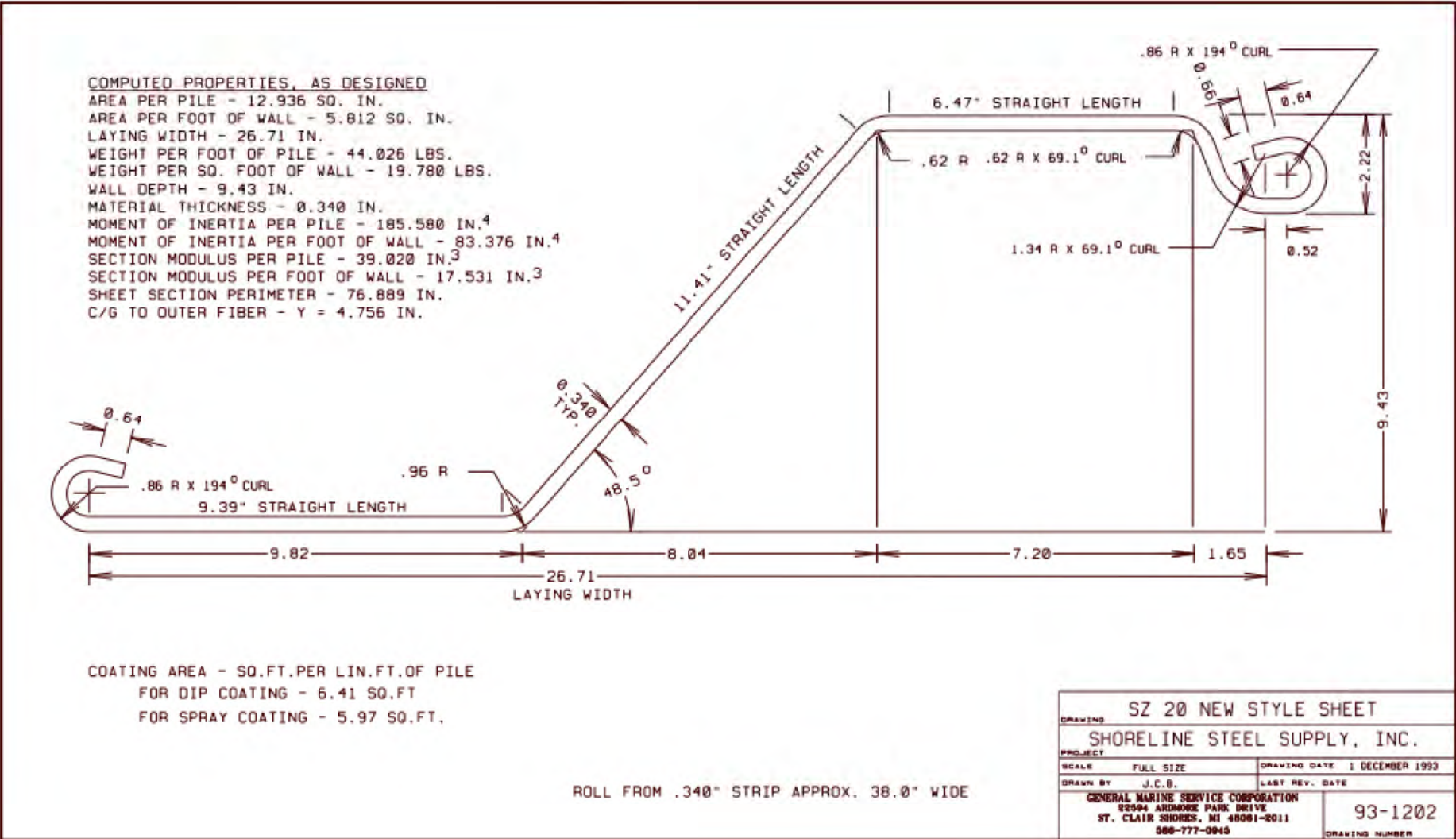
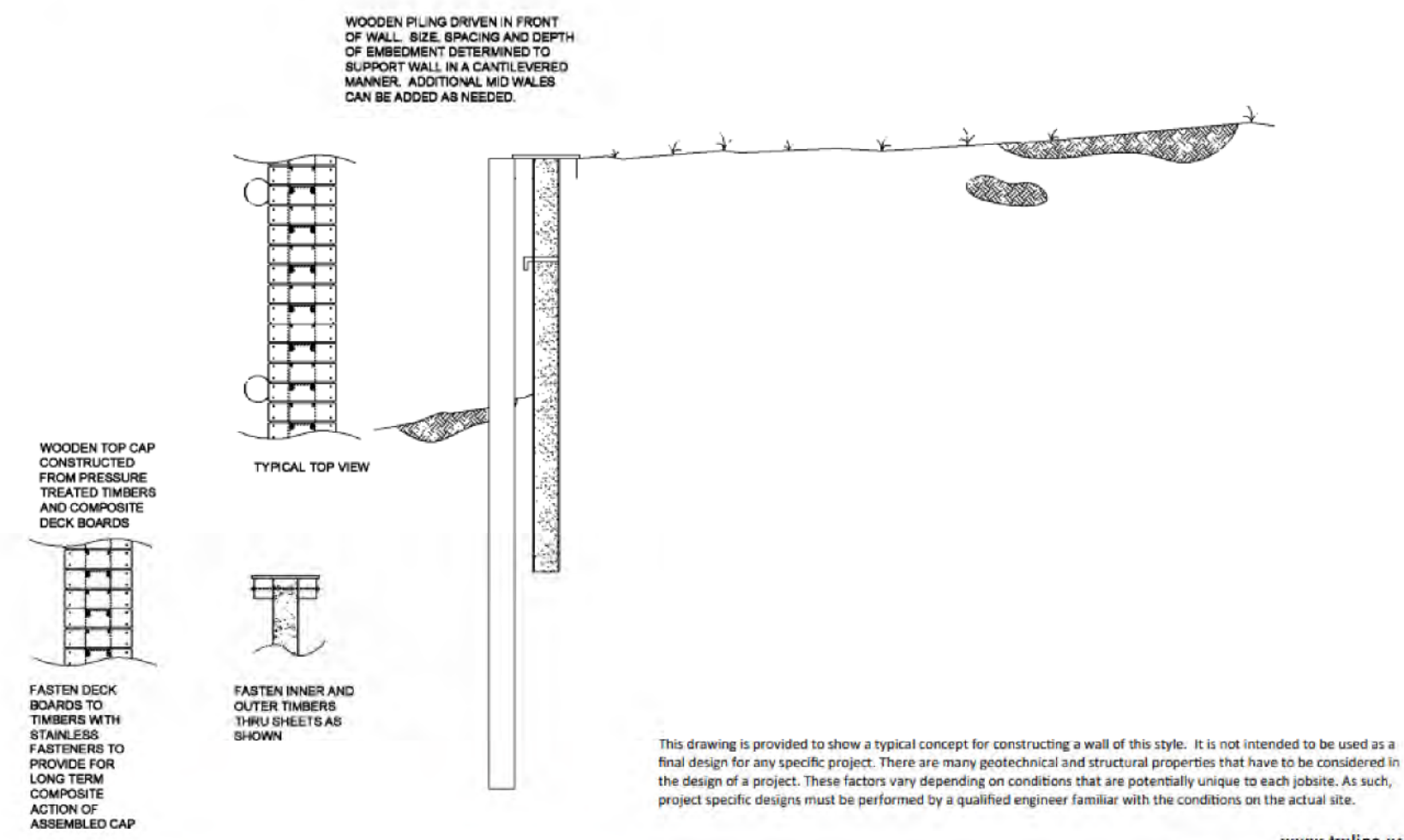
- INSTALL TRULINE WALL "NAVAL" OPTION, CONCRETE CELL BACKFILL MINIMUM f_c 3,500 PSI AND MINIMUM 8" DIAMETER DOUGLAS FIR MARINE GRADE TIMBER PILES. DESIGN SHALL BE BY CONTRACTOR AND SHALL BE SUBMITTED FOR ENGINEER'S REVIEW.
- IN LIEU OF CONCRETE BARRIER WALL, REMOVE EXISTING PILE CAPS AND INSTALL STEEL EXTENSION. EXTENSIONS TO BE DESIGNED BY CONTRACTOR AND SUBMITTED FOR APPROVAL TO ENGINEER. SEE STEEL BARRIER DETAIL FOR BASIS OF DESIGN.
- CONTRACTOR TO PROVIDE FIELD ATTACHMENT DETAILS TO ENGINEER FOR APPROVAL.

TRULINE[®]

The Innovative Hybrid Sheet Piling System

Drawing 112

navy style installation



Orientation	Scale
	NONE

Project
CITY OF DETROIT FLOOD MEASURES

Project Location
DETROIT, MICHIGAN

Sheet Name
SHEETPILE AND BERM NOTES



REV	ISSUED FOR	DATE	BY
OWNER REVIEW		07/21/23	LMJ
REVISION 1		08/18/23	LMJ
REVISION 2		09/19/23	LMJ

REV	ISSUED FOR	DATE	BY

Date
07/21/23

SME Project No.
091506.00

Project Manager:
L. JOHNSON

Designer:
L.JOHNSON

CADD:

Checked By:
THB

Sheet No.
CP-14

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BORING B 1

PAGE 1 OF 1

BORING DEPTH: 30 FEET

PROJECT NAME: City of Detroit Flood Mitigation

PROJECT NUMBER: 091506.00

CLIENT: Giffels Webster

PROJECT LOCATION: Detroit, Michigan

DATE STARTED: 5/4/23

COMPLETED: 5/4/23

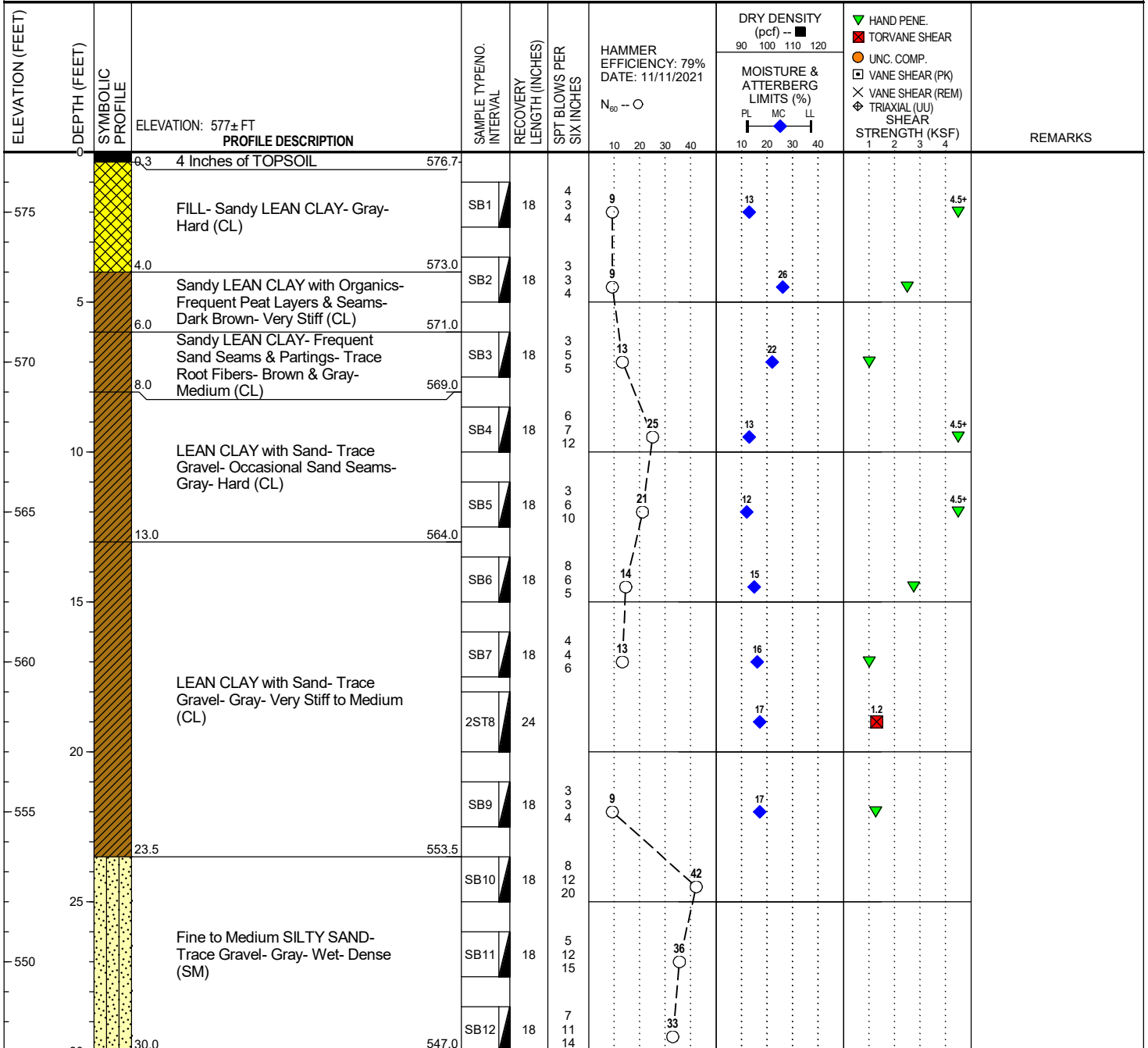
BORING METHOD: SSA 0' to 5', HSA 5' to 30'

DRILLER: WN

RIG NO.: 281 (CME 45B)

LOGGED BY: ZH

CHECKED BY: KPA



END OF BORING AT 30.0 FEET.

GROUNDWATER & BACKFILL INFORMATION

GROUNDWATER WAS NOT ENCOUNTERED

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

9/15/23 9:31:22 AM



BORING B 2

PAGE 1 OF 1

BORING DEPTH: 30 FEET

PROJECT NAME: City of Detroit Flood Mitigation

PROJECT NUMBER: 091506.00

CLIENT: Giffels Webster

PROJECT LOCATION: Detroit, Michigan

DATE STARTED: 5/4/23

COMPLETED: 5/4/23

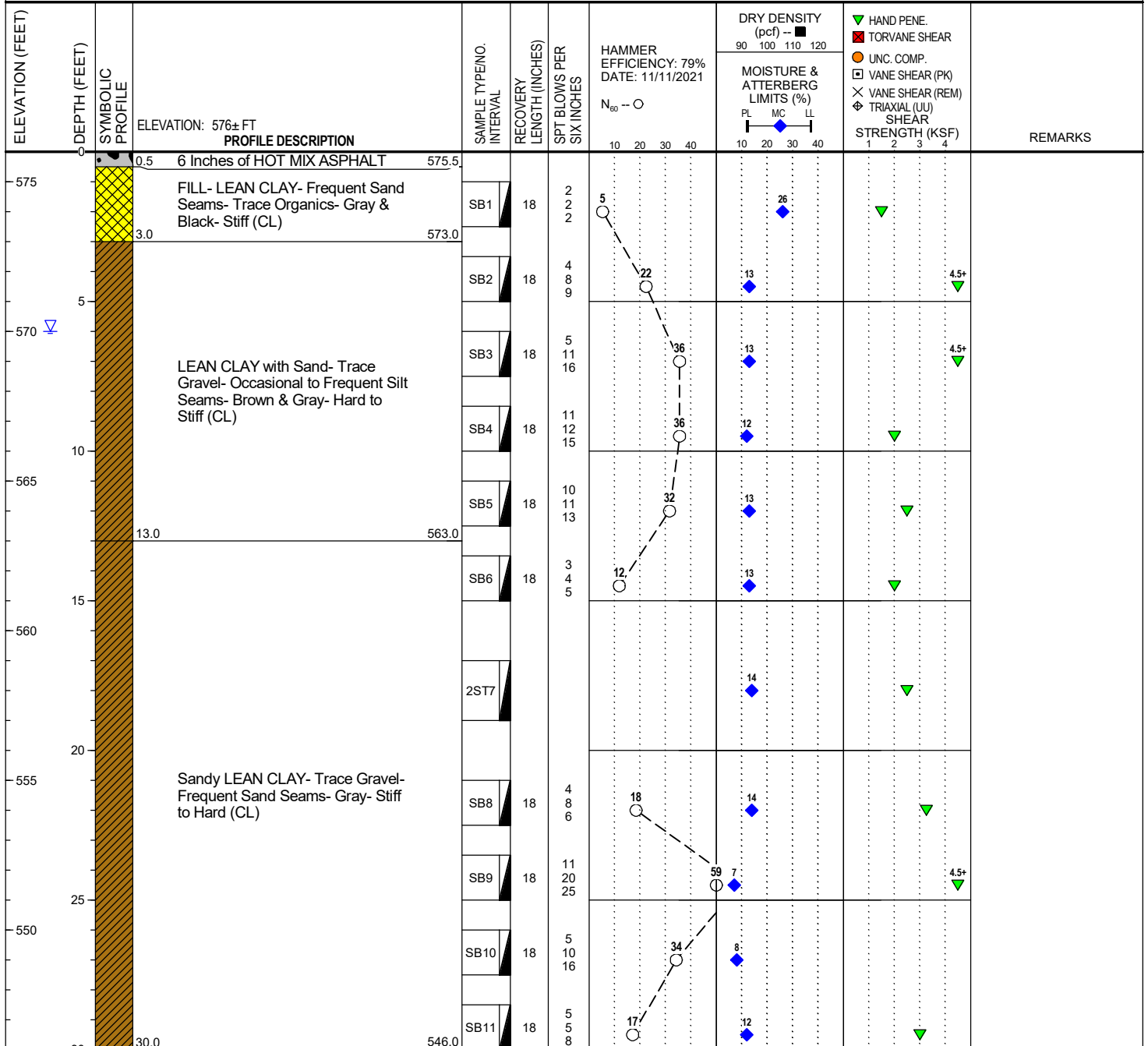
BORING METHOD: SSA 0' to 6', HSA 6' to 30'

DRILLER: WN

RIG NO.: 281 (CME 45B)

LOGGED BY: ZH

CHECKED BY: KPA



END OF BORING AT 30.0 FEET.

GROUNDWATER & BACKFILL INFORMATION

DEPTH (FT) ELEV (FT)
▼ DURING BORING: 6.0 570.0
▼ AT END OF BORING: None

BACKFILL METHOD: Auger Cuttings, EPCO Hole
Plug, Asphalt Cold Patch &
Surface Patch

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

9/15/23 9:31:24 AM



BORING B 3

PAGE 1 OF 1

BORING DEPTH: 30 FEET

PROJECT NAME: City of Detroit Flood Mitigation

PROJECT NUMBER: 091506.00

CLIENT: Giffels Webster

PROJECT LOCATION: Detroit, Michigan

DATE STARTED: 5/3/23

COMPLETED: 5/3/23

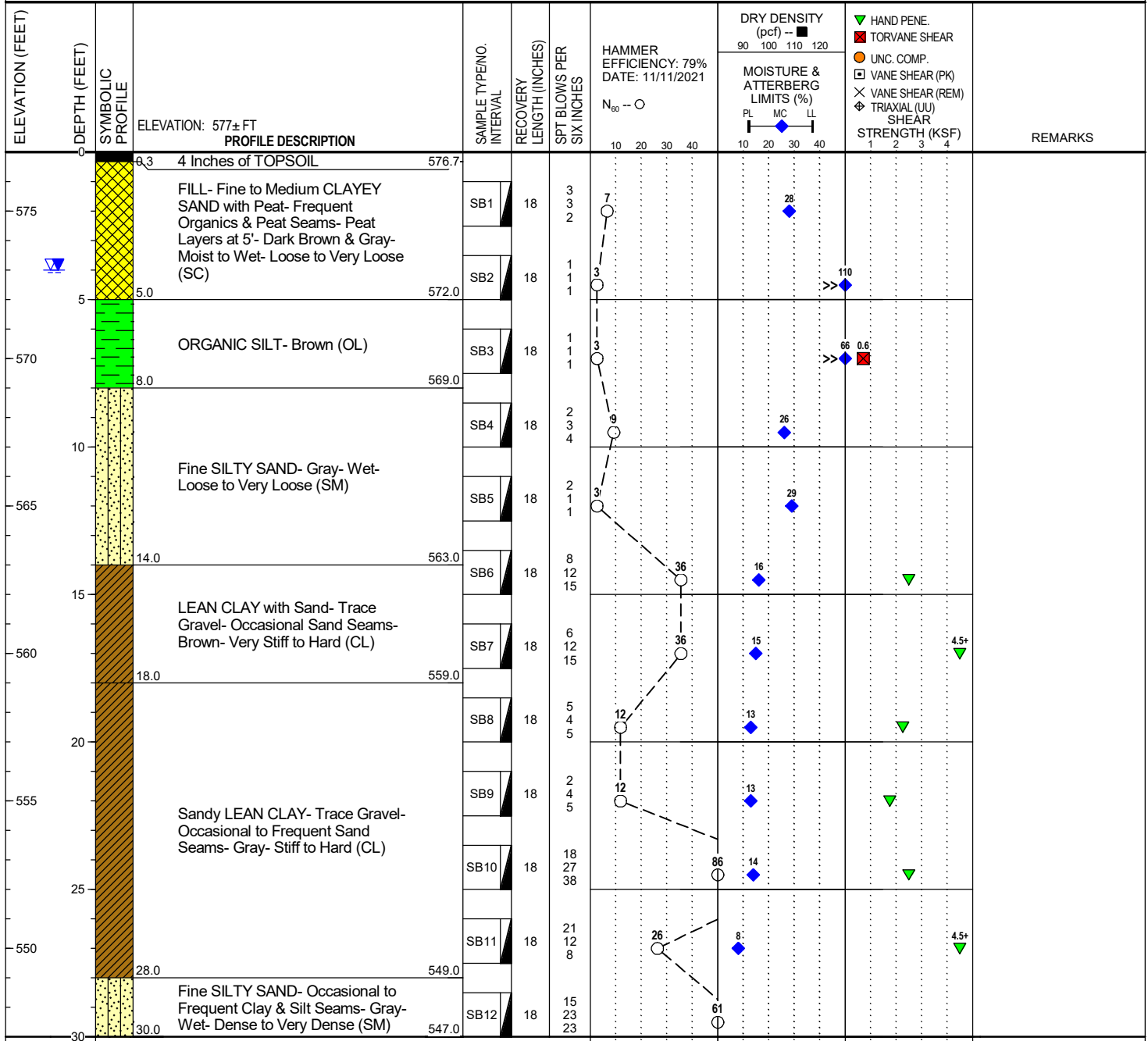
BORING METHOD: SSA 0' to 6', HSA 6' to 30'

DRILLER: WN

RIG NO.: 281 (CME 45B)

LOGGED BY: ZH

CHECKED BY: KPA



END OF BORING AT 30.0 FEET.

GROUNDWATER & BACKFILL INFORMATION

DEPTH (FT) ELEV (FT)

▽ DURING BORING: 4.0 573.0
▽ AT END OF BORING: 4.0 573.0

BACKFILL METHOD: Auger Cuttings & EPCO Hole Plug

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

9/15/23 9:31:25 AM



BORING B 4

PAGE 1 OF 1

BORING DEPTH: 30 FEET

PROJECT NAME: City of Detroit Flood Mitigation

PROJECT NUMBER: 091506.00

CLIENT: Giffels Webster

PROJECT LOCATION: Detroit, Michigan

DATE STARTED: 5/3/23

COMPLETED: 5/3/23

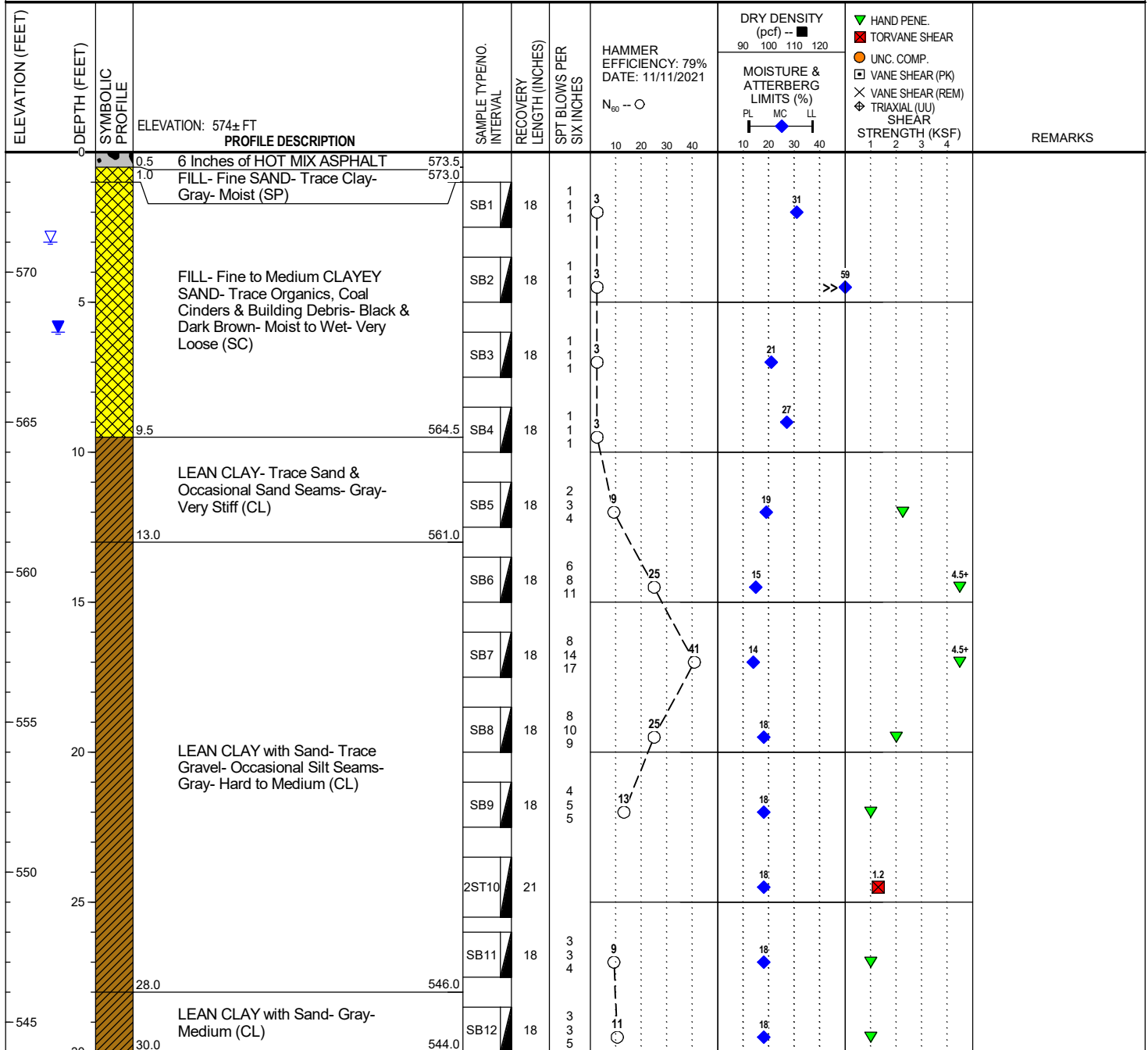
BORING METHOD: SSA 0' to 6', HSA 6' to 30'

DRILLER: WN

RIG NO.: 281 (CME 45B)

LOGGED BY: ZH

CHECKED BY: KPA



END OF BORING AT 30.0 FEET.

GROUNDWATER & BACKFILL INFORMATION

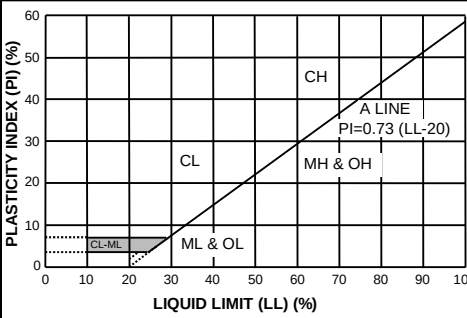
	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	3.0	571.0
▽ AT END OF BORING:	6.0	568.0
BACKFILL METHOD:	Auger Cuttings & EPCO Hole Plug	

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

BORING LOG TERMINOLOGY

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART		
COARSE-GRAINED SOIL (more than 50% of material is larger than No. 200 sieve size.)		
Clean Gravel (Less than 5% fines)		
GRAVEL More than 50% of coarse fraction larger than No. 4 sieve size		GW Well-graded gravel; gravel-sand mixtures, little or no fines
		GP Poorly-graded gravel; gravel-sand mixtures, little or no fines
	Gravel with fines (More than 12% fines)	
		GM Silty gravel; gravel-sand-silt mixtures
		GC Clayey gravel; gravel-sand-clay mixtures
Clean Sand (Less than 5% fines)		
SAND 50% or more of coarse fraction smaller than No. 4 sieve size		SW Well-graded sand; sand-gravel mixtures, little or no fines
		SP Poorly-graded sand; sand-gravel mixtures, little or no fines
	Sand with fines (More than 12% fines)	
		SM Silty sand; sand-silt-gravel mixtures
		SC Clayey sand; sand-clay-gravel mixtures
FINE-GRAINED SOIL (50% or more of material is smaller than No. 200 sieve size)		
SILT AND CLAY Liquid limit less than 50%		ML Inorganic silt; sandy silt or gravelly silt with slight plasticity
		CL Inorganic clay of low plasticity; lean clay, sandy clay, gravelly clay
		OL Organic silt and organic clay of low plasticity
		MH Inorganic silt of high plasticity, elastic silt
SILT AND CLAY Liquid limit 50% or greater		CH Inorganic clay of high plasticity, fat clay
		OH Organic silt and organic clay of high plasticity
		PT Peat and other highly organic soil
		

OTHER MATERIAL SYMBOLS		
		
		
		
		
		
		
		
		

LABORATORY CLASSIFICATION CRITERIA	
GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3
GP	Not meeting all gradation requirements for GW
GM	Atterberg limits below "A" line or PI less than 4
GC	Atterberg limits above "A" line with PI greater than 7
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3
SP	Not meeting all gradation requirements for SW
SM	Atterberg limits below "A" line or PI less than 4
SC	Atterberg limits above "A" line with PI greater than 7
Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent.....GW, GP, SW, SP More than 12 percent.....GM, GC, SM, SC 5 to 12 percent.....Cases requiring dual symbols • SP-SM or SW-SM (SAND with Silt or SAND with Silt and Gravel) • SP-SC or SW-SC (SAND with Clay or SAND with Clay and Gravel) • GP-GM or GW-GM (GRAVEL with Silt or GRAVEL with Silt and Sand) • GP-GC or GW-GC (GRAVEL with Clay or GRAVEL with Clay and Sand) If the fines are CL-ML: • SC-SM (SILTY CLAYEY SAND or SILTY CLAYEY SAND with Gravel) • SM-SC (CLAYEY SILTY SAND or CLAYEY SILTY SAND with Gravel) • GC-GM (SILTY CLAYEY GRAVEL or SILTY CLAYEY GRAVEL with Sand)	
PARTICLE SIZES	
Boulders	- Greater than 12 inches
Cobbles	- 3 inches to 12 inches
Gravel- Coarse	- 3/4 inches to 3 inches
Fine	- No. 4 to 3/4 inches
Sand- Coarse	- No. 10 to No. 4
Medium	- No. 40 to No. 10
Fine	- No. 200 to No. 40
Silt and Clay	- Less than (0.074 mm)
PLASTICITY CHART	
	

VISUAL MANUAL PROCEDURE	
When laboratory tests are not performed to confirm the classification of soils exhibiting borderline classifications, the two possible classifications would be separated with a slash, as follows: For soils where it is difficult to distinguish if it is a coarse or fine-grained soil: • SC/CL (CLAYEY SAND to Sandy LEAN CLAY) • SM/ML (SILTY SAND to SANDY SILT) • GC/CL (CLAYEY GRAVEL to Gravelly LEAN CLAY) • GM/ML (SILTY GRAVEL to Gravelly SILT) For soils where it is difficult to distinguish if it is sand or gravel, poorly or well-graded sand or gravel; silt or clay; or plastic or non-plastic silt or clay: • SP/GP or SW/GW (SAND with Gravel to GRAVEL with Sand) • SC/GC (CLAYEY SAND with Gravel to CLAYEY GRAVEL with Sand) • SM/GM (SILTY SAND with Gravel to SILTY GRAVEL with Sand) • SW/SP (SAND or SAND with Gravel) • GP/GW (GRAVEL or GRAVEL with Sand) • SC/SM (CLAYEY to SILTY SAND) • GM/GC (SILTY to CLAYEY GRAVEL) • CL/ML (SILTY CLAY) • ML/CL (CLAYEY SILT) • CH/MH (FAT CLAY to ELASTIC SILT) • CL/CH (LEAN to FAT CLAY) • MH/ML (ELASTIC SILT to SILT)	
DRILLING AND SAMPLING ABBREVIATIONS	
2ST	- Shelby Tube - 2" O.D.
3ST	- Shelby Tube - 3" O.D.
AS	- Auger Sample
GS	- Grab Sample
LS	- Liner Sample
NR	- No Recovery
PM	- Pressuremeter
RC	- Rock Core diamond bit. NX size, except where noted
SB	- Split Barrel Sample 1-3/8" I.D., 2" O.D., except where noted
VS	- Vane Shear
WS	- Wash Sample
OTHER ABBREVIATIONS	
WOH	- Weight of Hammer
WOR	- Weight of Rods
SP	- Soil Probe
PID	- Photo Ionization Device
FID	- Flame Ionization Device
DEPOSITIONAL FEATURES	
Parting	- as much as 1/16 inch thick
Seam	- 1/16 inch to 1/2 inch thick
Layer	- 1/2 inch to 12 inches thick
Stratum	- greater than 12 inches thick
Pocket	- deposit of limited lateral extent
Lens	- lenticular deposit
Hardpan/Till	- an unstratified, consolidated or cemented mixture of clay, silt, sand and/or gravel, the size/shape of the constituents vary widely
Lacustrine	- soil deposited by lake water
Mottled	- soil irregularly marked with spots of different colors that vary in number and size
Varved	- alternating partings or seams of silt and/or clay
Occasional	- one or less per foot of thickness
Frequent	- more than one per foot of thickness
Interbedded	- strata of soil or beds of rock lying between or alternating with other strata of a different nature
DESCRIPTION OF RELATIVE QUANTITIES	
The visual-manual procedure uses the following terms to describe the relative quantities of notable foreign materials, gravel, sand or fines: Trace - particles are present but estimated to be less than 5% Few - 5 to 10% Little - 15 to 25% Some - 30 to 45% Mostly - 50 to 100%	

CLASSIFICATION TERMINOLOGY AND CORRELATIONS			
Cohesionless Soils		Cohesive Soils	
Relative Density	N ₆₀ (N-Value) (Blows per foot)	Consistency	Undrained Shear Strength (kips/ft ²)
Very Loose	0 to 4	Very Soft	<2
Loose	5 to 10	Soft	2 - 4
Medium Dense	11 to 30	Medium	5 - 8
Dense	31 to 50	Stiff	9 - 15
Very Dense	51 to 80	Very Stiff	16 - 30
Extremely Dense	Over 81	Hard	> 30
Standard Penetration 'N-Value' = Blows per foot of a 140-pound hammer falling 30 inches on a 2-inch O.D. split barrel sampler, except where noted. N60 values as reported on boring logs represent raw N-values corrected for hammer efficiency only.			



Aerial Imagery, Giffels Webster, and Esri Community Maps Contributors, Province of Ontario, Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc. METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada



Public Right-of-Way Canal Frontage (220 total lf)

Public Parcels on a Canal

Table 1: Design Summary

No	Address	Parcel	Owner	Seawall Condition	Water Frontage Footage	Parcel Notes	Evaluation Notes	Assumed Treatment	City Input (04.28.23 Meeting)	Design Conclusion*	Photos-Photolog Title
1	14728 E Jefferson	21000329.	City of Detroit	NA	134	Narrow parcel that fronts on Jefferson, Fox Creek runs the depth of the parcel	Location is adjacent to backwater gate for Fox Creek Maintained by GLWA	New SSP Seawall	Follow up with GLWA/DWSD and FKE on purpose of the 48" line. Per City, expand our scope to include a new seawall from our corner NE to the edge of the new outfall. Also, need to grab the west side of that parcel as well at the building	New seawall along east bank from south end of the park up to new GLWA inlet to DRI. Confirming parcel limit, possible new wall on west bank as well	Photos 1-3, 19 3/22/23 Initial Walk Through
2	920 Manistique	21061002.	Detroit Land Bank Authority	No Seawall	30	Vacant parcel fronting on Manistique with canal at the rear	DLBA Parcel, permission required	New SSP Seawall	Agree with recommendation, reach out to property owner to the south and potentially extend	New seawall to 580.00	Photos 4-5 3/22/23 Initial Walk Through
3	908 Manistique	21061000.	Detroit Land Bank Authority	No Seawall	30	Vacant parcel fronting on Manistique with canal at the rear	DLBA Parcel, permission required	New SSP Seawall	Agree with recommendation	New seawall to 580.00 (Parcel may be sold, but work should include design of new wall)	Photos 4-5 3/22/23 Initial Walk Through
4	182 Ashland	21061853.	City of Detroit - P&DD	Disrepair	30	Vacant parcel (no home) but appears to have half of a boat garage on it along with paved boat storage	Adjacent boat garage, what is the condition of tie in points	New SSP Seawall	Design as a repair, probably won't build	New seawall to 580.00 to replace existing	
5	Harbor Island St ROW (East)	NA	City of Detroit - DPW	NA	60	East dead end of Harbor Island Street where it meets Fox Creek, large Tiger Dam placed there in 2020, no seawall visible	Any existing wall?	New SSP Seawall	New seawall, getting additional road topography to confirm direction of water flow	New seawall to 580.00	Photo 6 3/22/23 Initial Walk Through
6	Harbor Island St ROW (Center)	NA	City of Detroit - DPW	NA	60	West dead end of Harbor Island Street where it meets unnamed north/south canal between Ashland and Manistique. Existing seawall is visible and intact	Can wall be rehabilitated? If no, new wall on outside of existing	New/Repaired SSP Seawall	New seawall, getting additional road topography to confirm direction of water flow	New seawall to 580.00	Photos 1-8 5/10/23 - Harbor Island Center Photos 3 & 4 - Harbor Island West
7	Harbor Island St ROW (West)	NA	City of Detroit - DPW	NA	60	East dead end of long Harbor Island Street where it meets unnamed north/south canal between Ashland and Manistique. Existing seawall is visible and intact	Can wall be rehabilitated? If no, new wall on outside of existing	New/Repaired SSP Seawall	Confirmed that road drainage flows into combined sewer. Houses on north and south end have taken over a portion the ROW and built improvements. Confirm condition, can we extend wall higher	Extend seawall to 580.00	Photo 9- 5/10/23 - Harbor Island Center Photos 1 & 2- 5/10/23- Harbor Island West
8	14818 Harbor Island	21000182.000	City of Detroit P&DD, Care of DBA	Disrepair	158	Vacant parcel along the west side of Fox Creek. Seawall has visibly failed	Can new wall be installed outside of existing failed wall or is removal necessary	New SSP Seawall	Remove old wall, install new wall need to confirm alignment and constructability with wall	New seawall to 580.00, remove existing wall and backfill	Photo 7- 3/22/23 Initial Walk Through
9	14702 Riverside Blvd	21000119-23	Detroit Parks & Recreation	NA	1,170	Mariner Park. Length includes approximately 400 feet of seawall along the Detroit River and another 770 feet of unimproved frontage along Fox Creek	Can existing wall on Detroit River remain? Height will be important. Fox Creek frontage should remain as existing, parcel elevations will influence	No Improvements Likely	Need to confirm a scope to protect this parcel from BFE. Would be bid as an add alternate	No new wall. Report to indicate that a levee south of Riverside is required to protect from BFE	Photos 8-11- 3/22/23 Initial Walk Through
10	14490 Riverside Blvd	21000117.	Detroit Parks & Recreation	NA	630	Lakewood East Park. Footage includes 300 feet of seawall along the Detroit River and 330 feet along the west edge of the Philip Canal	Determine general condition of wall, parcel is a part of larger island that does not influence flood map or contribute to flooding of any other LES parcel	No Improvements Likely	No improvements to this parcel. Need to inform GSD	No new wall. SME to confirm if any repairs needed and tree removals. Island sits below BFE but no impact to neighborhood	Photos 2-4 & 6- 4/12/23 Lakewood East Photo 18- 3/22/23 Initial Walk Through
11	Klenk St ROW	NA	City of Detroit - DPW	NA	40	Klenk Street dead end at Philip Canal. Appears that there is no existing seawall at this location	Confirm existence/condition of wall	New SSP Seawall	Confirmed that road drainage flows into combined sewer. Install new wall at ROW line, will tie into existing walls on both sides	New seawall to 580.00	Photo 17- 3/22/23 Initial Walk Through
12	100 Lenox	21000110-6	City of Detroit P&DD, Care of DBA	NA	6,200	Parcel comprises AB Ford Park on both the east and west sides of the Lakewood Canal. Frontage includes approximately 2550 feet along the Detroit River with the remaining length along both sides of the Lakewood Canal and the south side of the Riverside Canal (northern limit of AB Ford Park). Only the north south portion of the canal has existing seawall, rest is unimproved	Some failure of wall/adjacent walk. Need to confirm condition of full length along Detroit River and Lakewood canal. Any improvements must coordinate with AB Ford Park upgrades	No Improvements Likely	Need short stretch of either new wall or increased height adjacent to 150 Lakewood. All other walls to remain. GSD to remove any trees or vegetation within 10 feet of existing walls	Extend seawall to 580.00 adjacent to 150 Lakewood	Photos 12-16 & 18- 3/22/23 Initial Walk Through
13	99 Lenox	21000109.	City of Detroit P&DD, Care of DBA	NA	320	Vacant land along the east arm of the Grayhaven Canal. Includes length of existing boat well. Combination of existing concrete seawall and unimproved edges	Confirm wall type and condition. Land should be protected by high ground, survey to verify with elevation grid.	No Improvements Likely	No improvements to this parcel. Wait for future development. No flooding or floodplain risk	No improvements. Report to summarize condition and conclude that land grades are high enough to protect from BFE	Photos 21-24- 4/12/23 Lenox Properties
14	189 Lenox	21050307-11	City of Detroit P&DD, Care of DBA	NA	610	Vacant land along the east arm of the Grayhaven Canal. Includes length of existing deep boat well. Combination of existing concrete seawall and unimproved edges	Confirm wall type and condition. Land should be protected by high ground, survey to verify with elevation grid.	No Improvements Likely	No improvements to this parcel. Wait for future development. No flooding or floodplain risk	No improvements. Report to summarize condition and conclude that land grades are high enough to protect from BFE	Photos 1-4, 6-14, 16-20- 4/12/23 Lenox Properties
15	319 Lenox	21050278-306	City of Detroit P&DD, Care of DBA	NA	1,150	Large vacant land along the east arm of the Grayhaven Canal. Combination of existing concrete seawall and unimproved edges.	Confirm wall type and condition. Land should be protected by high ground, survey to verify with elevation grid.	No Improvements Likely	No improvements to this parcel. Wait for future development. No flooding or floodplain risk	No improvements. Report to summarize condition and conclude that land grades are high enough to protect from BFE	Photos 5,15- 4/12/23 Lenox Properties
16	301 Lenox	21000084-7	City of Detroit P&DD, Care of DBA	NA	50	Narrow vacant parcel along the east arm of Grayhaven Canal. Edge is generally unimproved	Confirm wall type and condition. Land should be protected by high ground, survey to verify with elevation grid.	No Improvements Likely	No improvements to this parcel. Wait for future development. No flooding or floodplain risk	No improvements. Report to summarize condition and conclude that land grades are high enough to protect from BFE	
17	12750 Avondale	21000094-107	City of Detroit P&DD, Care of DBA	NA	2,095	Large mostly vacant land along the west arm of Grayhaven Canal. Edge is generally unimproved or rip rap. Southern portion is Gray Haven State Harbor. Length provided is the total wet edge minus water frontage of 12600 Avondale below	Confirm wall type and condition. Land should be protected by high ground, survey to verify with elevation grid.	Limited Improvements to exist Rip Rap Edge	New grading berm/levee to connect high ground and block flooding to the northwest, no walls if possible. Some additional topography needed	No new wall. Berm, not levee needed along northwest corner of parcel to close off elevation barrier above BFE	Photos 1-2- 4/12/23 Avondale Properties
18	12600 Avondale	21000075.	Detroit Parks & Recreation	NA	645	Parking lot for Gray Haven State Harbor. Length includes existing rip rap edge along marina.	Confirm wall type and condition. Land should be protected by high ground, survey to verify with elevation grid.	Limited Improvements to exist Rip Rap Edge	New grading berm/levee to connect high ground and block flooding to the northwest, no walls if possible. Some additional topography needed	No new wall. Berm grading needed along north parcel line to close off elevation barrier above BFE	Photos 3-5- 4/12/23 Avondale Properties

* Comments by GWE.

SEAWALL NOTES

1. PRE-EXCAVATE RIPRAP, TREES, AND OTHER DEBRIS WITHIN THE SEAWALL ALIGNMENT PRIOR TO BEGINNING DRIVING OPERATIONS.
2. INSTALL NEW SEAWALLS WHERE NOTED. SEAWALLS SHALL BE HOT-ROLLED SECTION WITH MINIMUM SECTION MODULUS 17.5 IN³ PER FOOT. SHORELINE SZ20 MEETS THE MINIMUM REQUIREMENT.
3. SEAWALL SECTION AND EMBEDMENT ACCOUNTS FOR LONG-TERM SECTION LOSS DUE TO CORROSION. SECTIONS OTHER THAN THAT PROVIDED FOR THIS BASIS OF DESIGN WILL REQUIRE SECTION-SPECIFIC ANALYSIS TO BE PROVIDED BY CONTRACTOR AND SUBMITTED TO ENGINEER FOR REVIEW.
4. PILE CAP SHALL BE MINIMUM $\frac{3}{8}$ -INCH THICK STEEL CHANNEL SECTION, SIZED APPROPRIATELY TO THE SHEET PILE SECTION INSTALLED. PILE CAP SHALL BE WELDED TO BACK AND FACE EDGE OF SHEET PILE, $\frac{3}{8}$ -INCH CONTINUOUS WELD.
5. WHERE EXISTING WALLS ARE IN GOOD CONDITION, REMOVE EXISTING CAPS (WHERE PRESENT), AND INSTALL CONCRETE BARRIER WALL.
6. BACKFILL ALL SEAWALLS WITH MDOT CLASS II SAND COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD.
7. IN LIEU OF SAND BACKFILL, WALLS MAY BE BACKFILLED WITH MDOT 6A CRUSHED AGGREGATE.
8. PLACE NONWOVEN GEOTEXTILE (MIRAFI 150N OR EQUIVALENT) ALONG FACE OF WALL, EXTENDING VERTICALLY ALONG BACK SIDE OF WALL, AND EXTENDING ABOVE TOP OF SAND OR AGGREGATE WALL BACKFILL, EXTENDING MINIMUM 3 FEET BEYOND INBOARD EDGE OF EXCAVATION. PLACE 12 INCHES OF TOPSOIL OVER SEPARATION FABRIC AND SEED AND MULCH PER CIVIL ENGINEER'S DETAIL.
9. PLACE 3 FEET MINIMUM MDOT HEAVY RIPRAP AT FACE OF SEAWALL FOR EROSION CONTROL.

ALTERNATES

1. INSTALL TRULINE WALL "NAVAL" OPTION, CONCRETE CELL BACKFILL MINIMUM f'_c 3,500 PSI AND MINIMUM 8" DIAMETER DOUGLAS FIR MARINE GRADE TIMBER PILES. DESIGN SHALL BE BY CONTRACTOR AND SHALL BE SUBMITTED FOR ENGINEER'S REVIEW.
2. IN LIEU OF CONCRETE BARRIER WALL, REMOVE EXISTING PILE CAPS AND INSTALL STEEL EXTENSION. EXTENSIONS TO BE DESIGNED BY CONTRACTOR AND SUBMITTED FOR APPROVAL TO ENGINEER. SEE STEEL BARRIER DETAIL FOR BASIS OF DESIGN.



PHOTO NO. 1: Looking NE from 950 Manistique at 14728 East Jefferson



PHOTO- NO. 2: Looking E at south end of 14728 Jefferson from 950 Manistique

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 3: Looking E from 950 Manistique at south end 14728 E. Jefferson

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 4: Looking SE from N end 920 Manistique

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 5: Looking S from 920 Manistique



PHOTO NO. 6: Looking SW at east end of Harbor Island Street

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 7: Looking SW at 14818 Harbor Island Street.



PHOTO NO. 8: Looking N from SE corner of 14702 Riverside Boulevard

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 9: Looking N from middle east side of 14702 Riverside Boulevard



PHOTO 10: Looking S from middle east side of 14702 Riverside Boulevard

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO 11: Looking N from middle east side of 14702 Riverside Boulevard



Photo 12: Looking S from center E side of 100 Lenox

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO 13: Looking S from center E side of 100 Lenox



PHOTO 14: "Intact" concrete wall at S end 100 Lenox

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO 15: Looking N from N end seawall at 100 Lenox



PHOTO 16: Looking S at seawall near midpoint of wall at 100 Lenox

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO 17: Wall at W End Klenk Island



PHOTO 18: Looking W at NE corner 100 Lenox from W end Klenk Island

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO 19: Looking W at N end 14728 East Jefferson Avenue

SME Project No.:	091506.00 – Initial Walk-Through
Photographs by:	Laurel M. Johnson, PE
Date:	March 22, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 1: Erosion due to failed concrete seawall on adjacent property.



PHOTO NO. 2: General picture looking east.

SME Project No.:	091506.00 AB Ford Park 1
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 3: General picture looking west.



PHOTO NO. 4: Possible soil migration into river.

SME Project No.:	091506.00 AB Ford Park 1
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 5: Sidewalk settlement



PHOTO NO. 6: Sidewalk settlement

SME Project No.:	091506.00 AB Ford Park 1
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 7: Soil migration into drain



PHOTO NO. 8: Sidewalk settlement

SME Project No.:	091506.00 AB Ford Park 1
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 9: Possible Shipwreck



PHOTO NO. 10: General picture looking west.

SME Project No.:	091506.00 AB Ford Park 1
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 1: Seawall along channel



PHOTO NO. 2: Seawall of opposite side of channel

SME Project No.:	091506.00 – Lakewood East
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 3: Trees along channel seawall



PHOTO NO. 4: Possible soil migration into manhole or into channel

SME Project No.:	091506.00 – Lakewood East
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 5: Overgrown trees causes increased stress on wall and anchors.



PHOTO NO. 6: Opposing side of Channel

SME Project No.:	091506.00 – Lakewood East
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 1: No seawall. Concrete Riprap



PHOTO NO. 2: Failed original concrete seawall

SME Project No.:	091506.00- Avondale Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 3: More Riprap



PHOTO NO. 4: Riprap by docks

SME Project No.:	091506.00- Avondale Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 5: Riprap along property boundary.

SME Project No.:	091506.00- Avondale Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 1: Eroded and undermined seawall along channel



PHOTO NO. 2: Eroded and undermined seawall along channel

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 3: Eroded Seawall along Channel



PHOTO NO. 4: Eroded Concrete Seawall

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 5: Dense vegetation with a considerable amount of thorns.

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 6: North Bay

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 7: North Bay

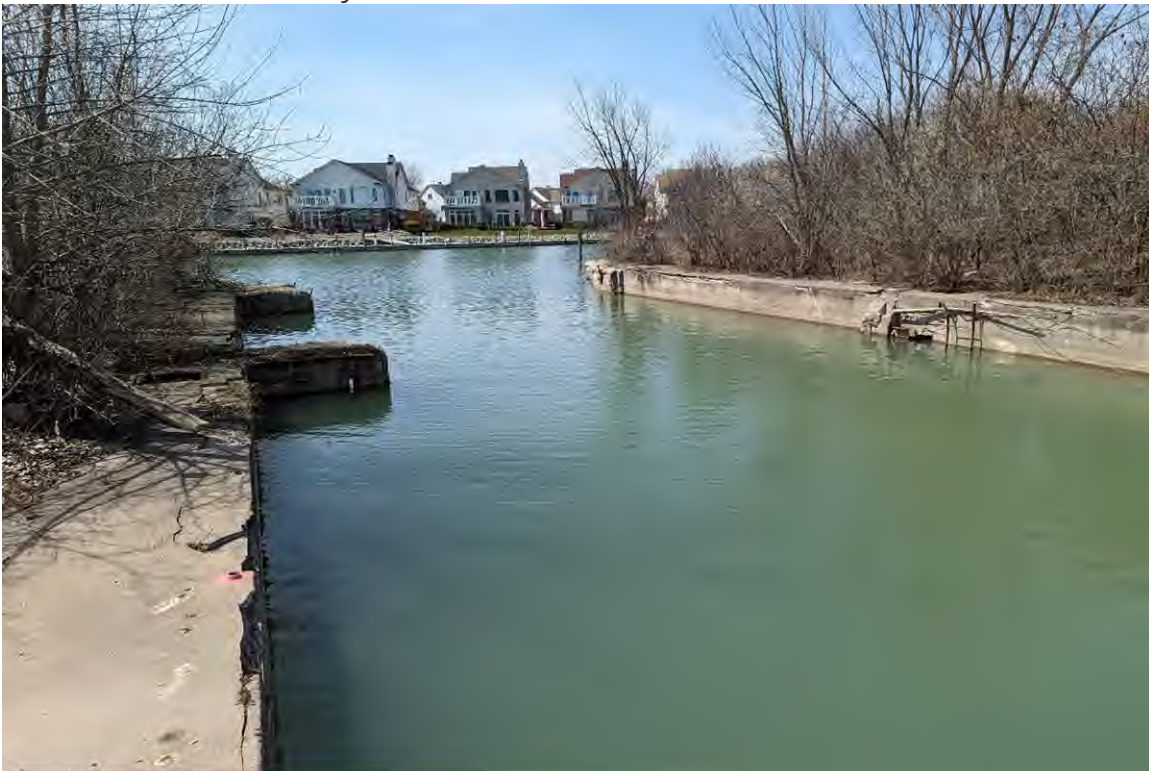


PHOTO NO. 8: North Bay

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 9: North bay inlet



PHOTO NO. 10: Steel sheeting along channel and into north bay

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 11: Steel sheeting along channel



PHOTO NO. 12: Steel Sheetting into Middle Bay

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 13: Middle Bay



PHOTO NO. 14: Middle Bay

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 15: Concrete Seawall along Channel

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 16: Eroded Concrete Seawall

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 17: South Bay



PHOTO NO. 18: South Bay

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 19: South Bay



PHOTO NO. 20: South Bay

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 21: Eroded Concrete Seawall



PHOTO NO. 22: Concrete Seawall extending to submerged section

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 23: Property Line between Lenox and Ford Brush Park



PHOTO NO. 24: Eroded Seawall

SME Project No.:	091506.00 – Lenox Properties
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 1: Recent Sewer Repair



PHOTO NO. 2: Erosion of channel bank with no rip-rap present

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan

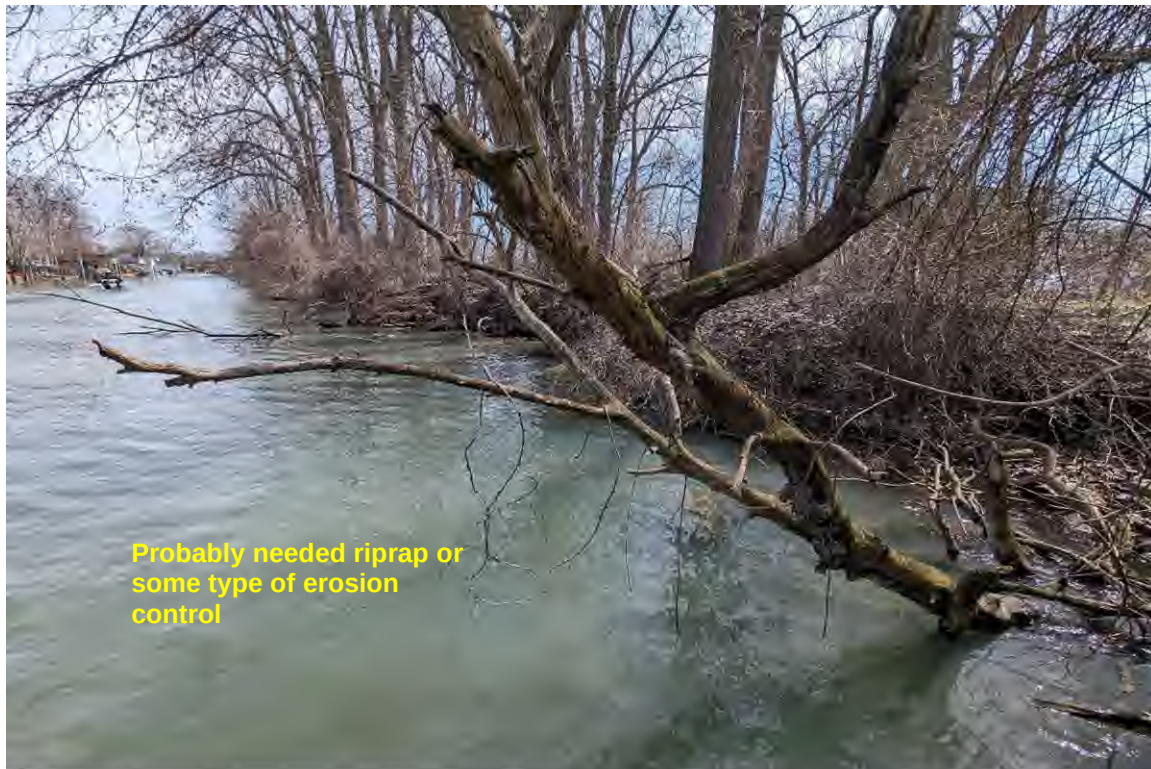


PHOTO NO. 3: Different view of erosion of along channel bank



PHOTO NO. 4: Possible soil migration into manhole

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 5: Depression indicated in Photo No. 4



PHOTO NO. 6: Erosion behind sheeting

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan

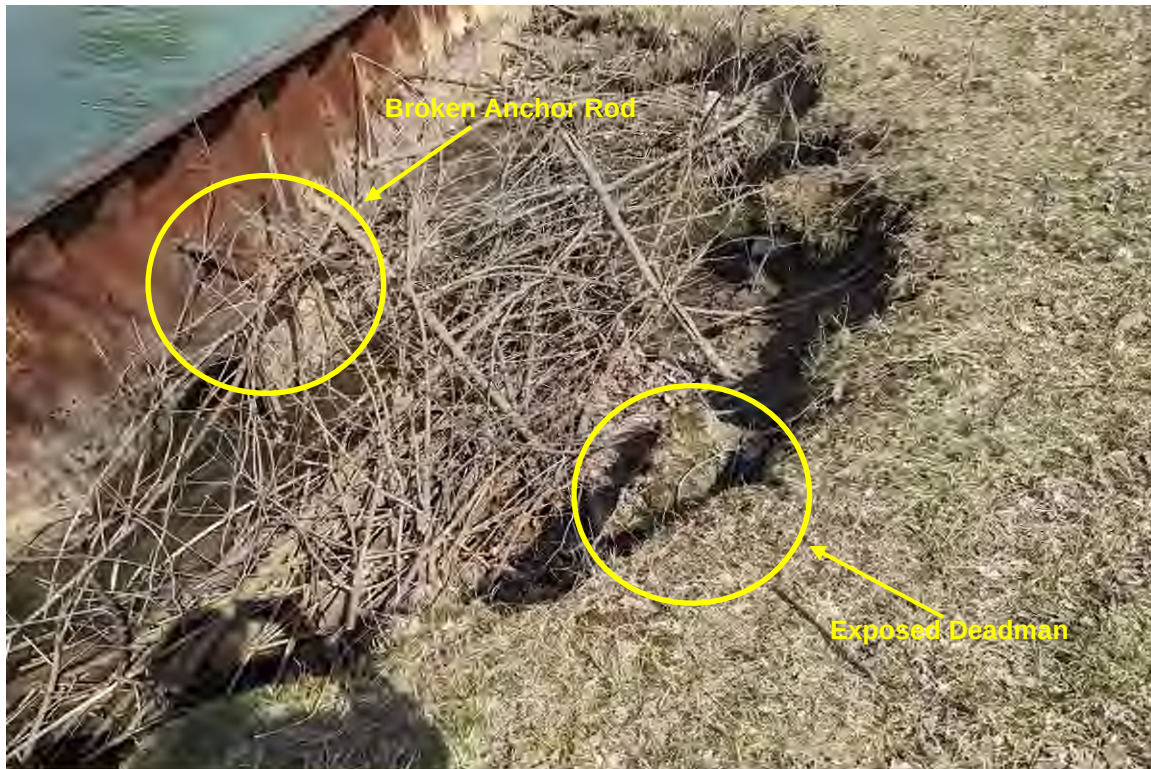


PHOTO NO. 7: Wall Failure #1



PHOTO NO. 8: Whaler completely rusted through. (Noted in multiple locations)

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 9: Broken Whaler Connection



PHOTO NO. 10: Trees adding stress to seawall (along entire channel)

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 11: Exposed Anchor Rod (noted in multiple locations)



PHOTO NO. 12: Exposed Anchor Rod and Soil Settlement

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 13: Exposed Anchor Rod and Erosion behind wall.



PHOTO NO. 14: Erosion behind sheeting at interface

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 15: Bent metal ledge and settlement of pavement.



PHOTO NO. 16: Tree Disturbing Pavement and Possibly Sheeting

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 17: Possible Soil Migration



PHOTO NO. 18: Pavement failure and being overgrown.

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 19: Tree growing through Sheeting

SME Project No.:	091506.00 - Lakewood East Park
Photographs by:	Kyle P. Areaux, PE
Date:	April 12, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 1: River and channel intersection.



PHOTO NO. 2: Sidewalk at upriver corner.

SME Project No.:	091506.00 – AB Ford Park
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 3: Sidewalk looking upriver.



PHOTO NO. 4: Sidewalk looking upriver.

SME Project No.:	091506.00 – AB Ford Park
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 5: Wall failure looking upriver.



PHOTO NO. 6: Wall failure looking down river.

SME Project No.:	091506.00 – AB Ford Park
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 7: Settlement behind wall failure.

SME Project No.:	091506.00 – AB Ford Park
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 8: Wall failure looking down river.

SME Project No.:	091506.00 – AB Ford Park
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 1: Harbor Island Center seawall failure from above.



PHOTO NO. 2: Harbor Island Center exposed tie.

SME Project No.:	091506.00 – Harbor Island Center
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 3: Harbor Island Center tie exposed.

SME Project No.:	091506.00 – Harbor Island Center
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 4: Harbor Island Center soil erosion.

SME Project No.:	091506.00 – Harbor Island Center
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 5: Harbor Island Center north covered dock.



PHOTO NO. 6: Harbor Island Center north covered dock with indication of settlement.

SME Project No.:	091506.00 – Harbor Island Center
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 7: Cracked masonry block of north covered dock.



PHOTO NO. 8: Concrete and steel debris at interface between seawall and south dock.

SME Project No.:	091506.00 – Harbor Island Center
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 9: West Harbor Island from Harbor Island Center

SME Project No.:	091506.00 – Harbor Island Center
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



PHOTO NO. 1: West Harbor Island Center seawall from above.

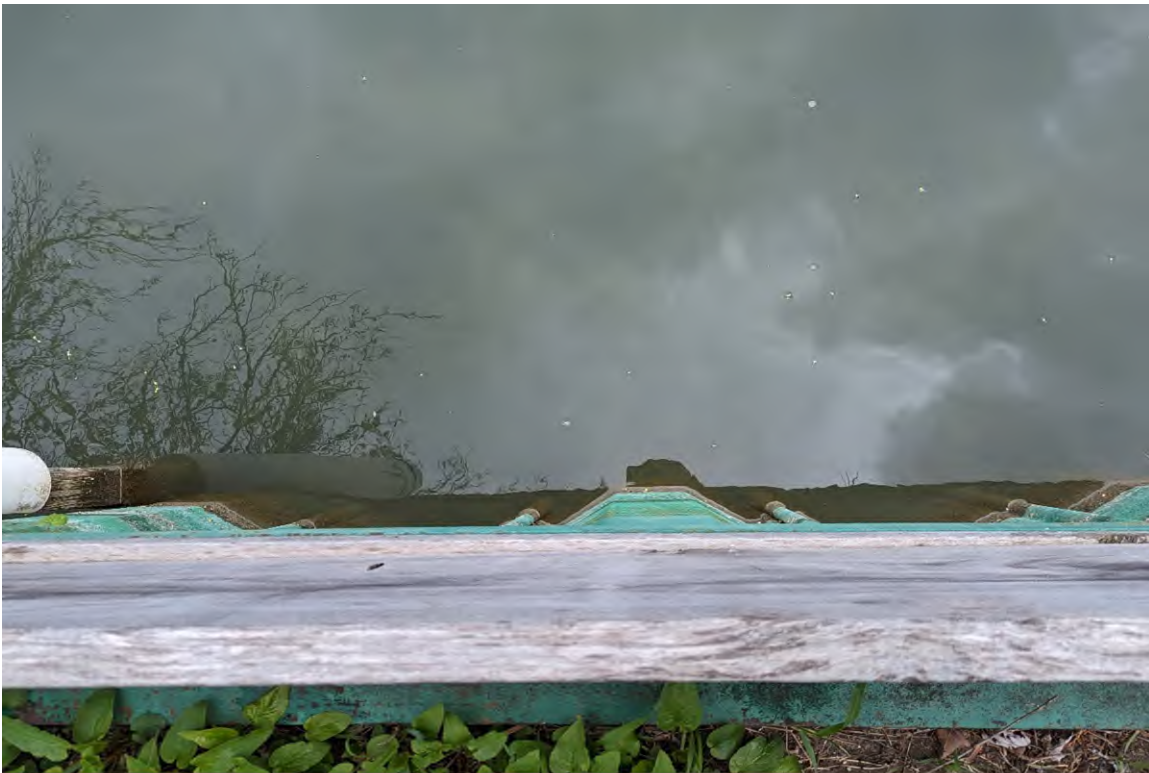


PHOTO NO. 2: West Harbor Island seawall from above.

SME Project No.:	091506.00 – Harbor Island West
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan



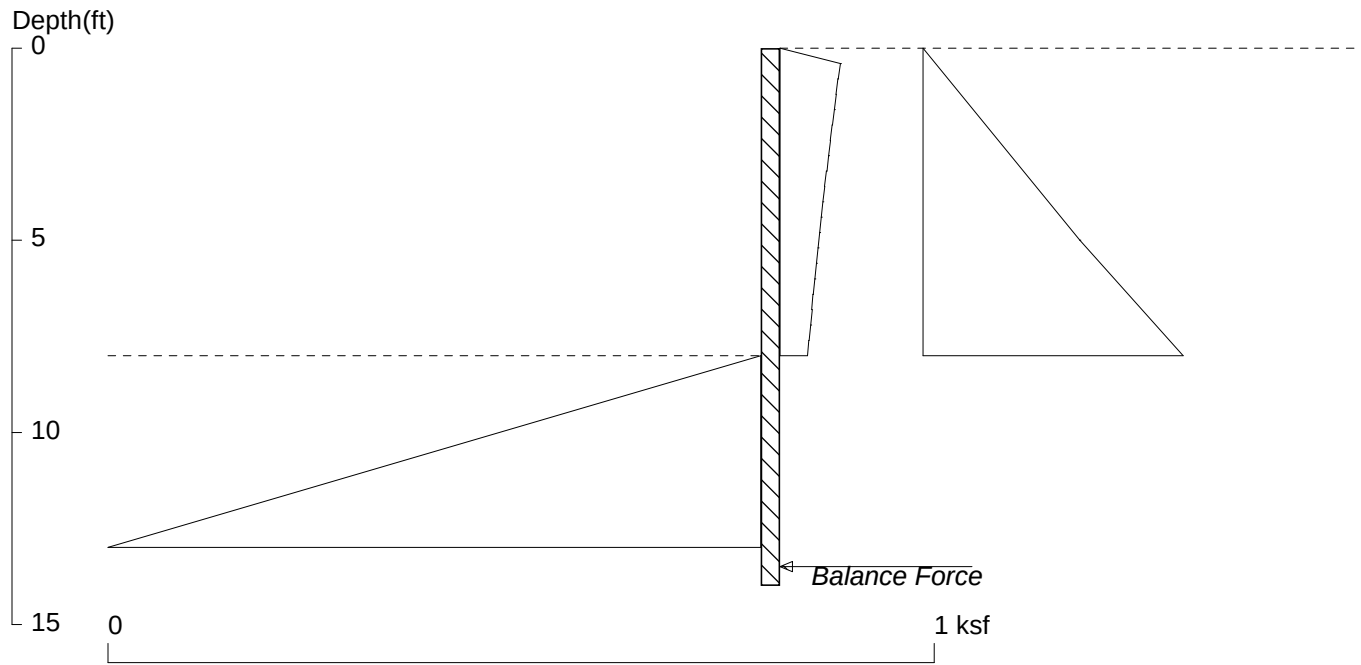
PHOTO NO. 3: Harbor Island Center Seawall from West Harbor Island.



PHOTO NO. 4: Harbor Island Center Seawall from West Harbor Island.

SME Project No.:	091506.00 – Harbor Island West
Photographs by:	Kyle P. Areaux, PE
Date:	May 10, 2023
Project:	City of Detroit Flood Mitigation – Lower East Side
Location:	Detroit, Michigan

Jefferson Village Flood Control



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Date: 7/28/2023 File Name: \\sme-inc\pz\WIP\091506.00\Project Data\Walls\Organics and Soft Clays.sh8

Wall Height=8.0 Pile Diameter=1.0 Pile Spacing=1.0 Wall Type: 1. Sheet Pile

PILE LENGTH: Min. Embedment=5.99 (8~10 is recommended) Min. Pile Length=13.99

MOMENT IN PILE: Max. Moment=11.05 per Pile Spacing=1.0 at Depth=12.98

PILE SELECTION:

Request Min. Section Modulus = 3.3 in³/feet, $F_y = 60 \text{ ksi} = 414 \text{ MPa}$, $F_b/F_y = 0.66$

SZ20 has Section Modulus = 17.8. It is greater than Min. Requirements!, Top Deflection = 0.08(in)

DRIVING PRESSURES (ACTIVE, WATER, & SURCHARGE):

No.	Z1	P1	Z2	P2	Slope
1	0.0	0.00	0.4	0.07	0.183
2	0.4	0.07	0.8	0.07	-0.006
3	0.8	0.07	1.2	0.07	-0.006
4	1.2	0.07	1.6	0.07	-0.006
5	1.6	0.07	2.0	0.06	-0.006
6	2.0	0.06	2.4	0.06	-0.006
7	2.4	0.06	2.8	0.06	-0.006
8	2.8	0.06	3.2	0.06	-0.006
9	3.2	0.06	3.6	0.05	-0.005
10	3.6	0.05	4.0	0.05	-0.005
11	4.0	0.05	4.4	0.05	-0.005
12	4.4	0.05	4.8	0.05	-0.005
13	4.8	0.05	5.2	0.05	-0.005
14	5.2	0.05	5.6	0.04	-0.005
15	5.6	0.04	6.0	0.04	-0.005
16	6.0	0.04	6.4	0.04	-0.005
17	6.4	0.04	6.8	0.04	-0.004
18	6.8	0.04	7.2	0.04	-0.004
19	7.2	0.04	7.6	0.04	-0.004

20	7.6	0.04	8.0	0.03	-0.004
21	0.0	0.00	5.0	0.19	0.038
22	5.0	0.19	8.0	0.31	0.042

PASSIVE PRESSURES: Pressures below will be divided by a Factor of Safety =1.5

No.	Z1	P1	Z2	P2	Slope
1	8.0	0.00	14.0	0.95	0.158
2	14.0	0.95	18.0	1.79	0.210
3	18.0	1.79	28.0	3.81	0.202
4	28.0	3.81	30.0	4.18	0.188

ACTIVE SPACING:

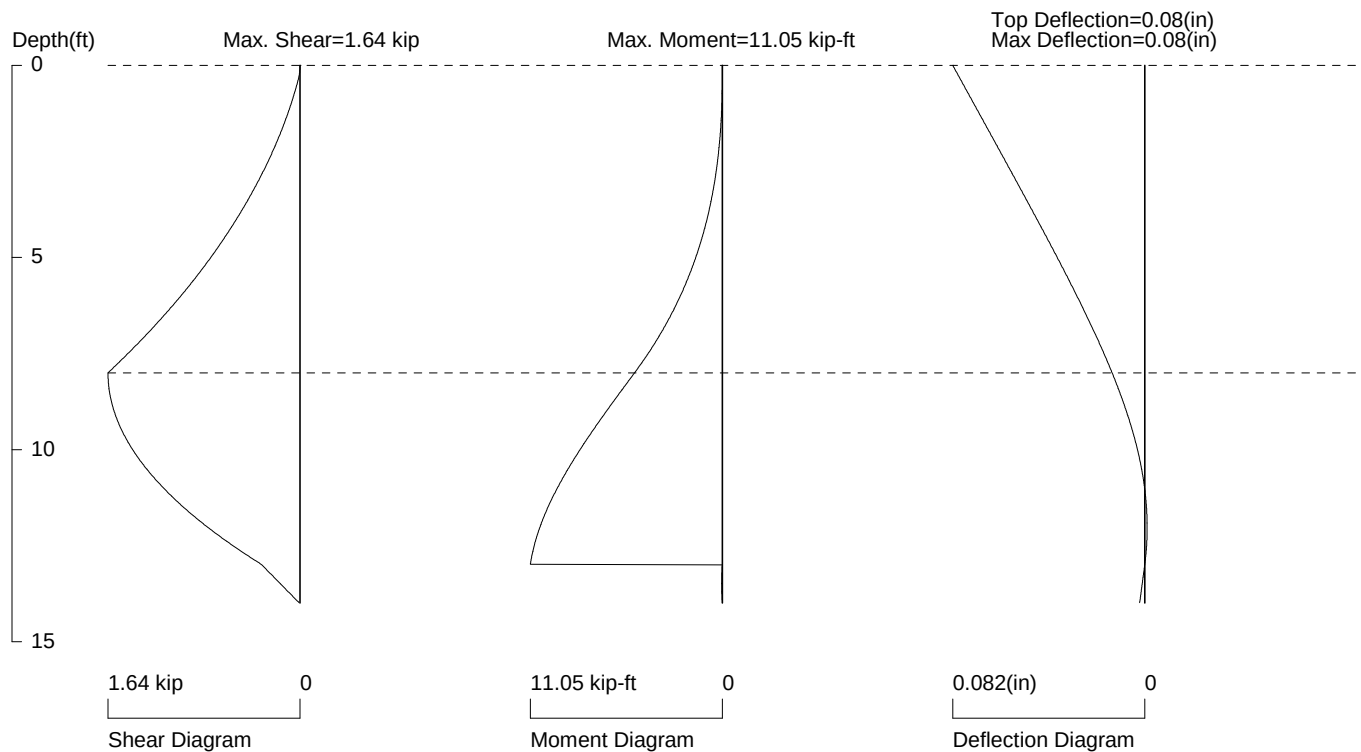
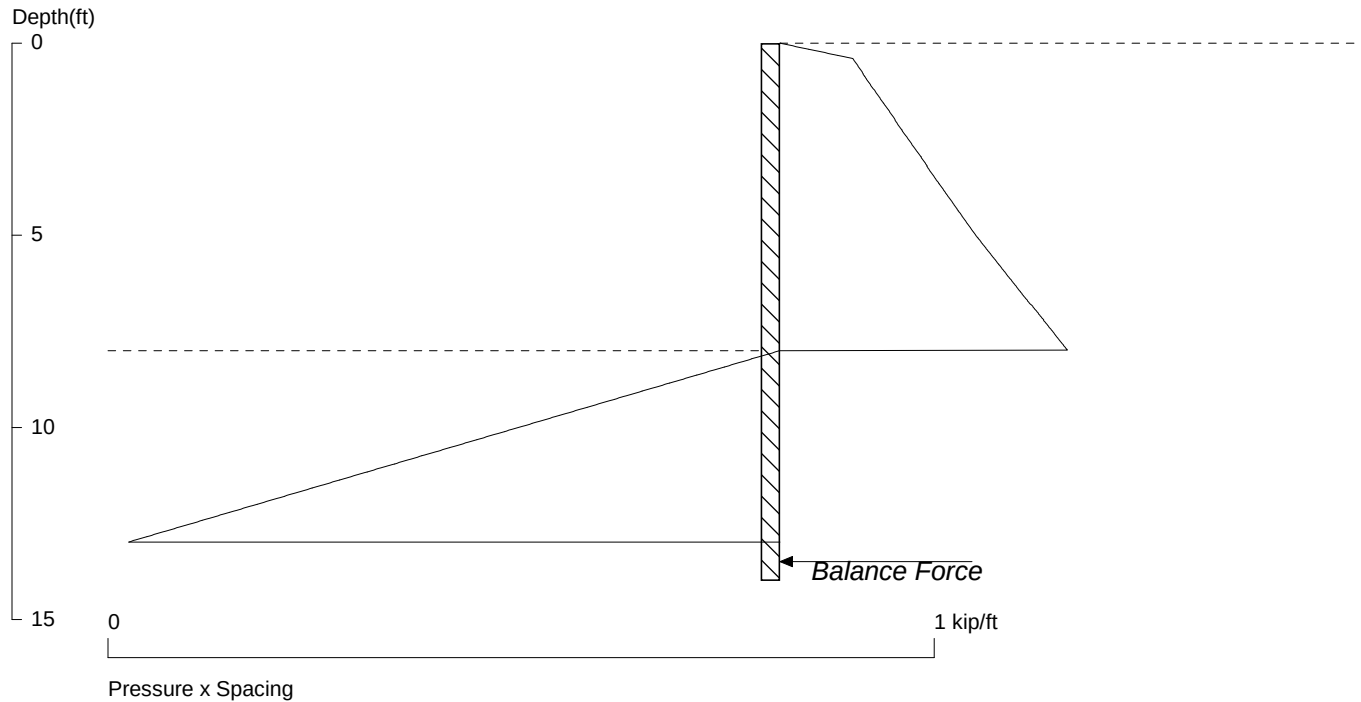
No.	Z depth	Spacing
1	0.00	1.00
2	8.00	1.00

PASSIVE SPACING:

No.	Z depth	Spacing
1	8.00	1.00

UNITS: Width,Spacing,Diameter,Length,and Depth - ft; Force - kip; Moment - kip-ft
Friction,Bearing,and Pressure - ksf; Pres. Slope - kip/ft³; Deflection - in

Jefferson Village Flood Control



PRESSURE, SHEAR, MOMENT, AND DEFLECTION DIAGRAMS

Based on pile spacing: 1.0 feet or meter

Pile: SZ20 meet Section Requirements. Properties: E (ksi)=29000.0, I (in⁴)/foot=86.6

Date: 7/28/2023 File Name: \\sme-inc\pz\WIP\091506.00\Project Data\Walls\Organics and Soft Clays.sh8

APPENDIX B

IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL ENGINEERING REPORT

GENERAL COMMENTS

LABORATORY TESTING PROCEDURES

Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual site-wide subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists.*



GEOPROFESSIONAL
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ASSOCIATION

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e-mail: info@geoprofessional.org www.geoprofessional.org

GENERAL COMMENTS

BASIS OF GEOTECHNICAL REPORT

This report has been prepared in accordance with generally accepted geotechnical engineering practices to assist in the design and/or evaluation of this project. If the project plans, design criteria, and other project information referenced in this report and utilized by SME to prepare our recommendations are changed, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions and recommendations of this report are modified or approved in writing by our office.

The discussions and recommendations submitted in this report are based on the available project information, described in this report, and the geotechnical data obtained from the field exploration at the locations indicated in the report. Variations in the soil and groundwater conditions commonly occur between or away from sampling locations. The nature and extent of the variations may not become evident until the time of construction. If significant variations are observed during construction, SME should be contacted to reevaluate the recommendations of this report. SME should be retained to continue our services through construction to observe and evaluate the actual subsurface conditions relative to the recommendations made in this report.

In the process of obtaining and testing samples and preparing this report, procedures are followed that represent reasonable and accepted practice in the field of soil and foundation engineering. Specifically, field logs are prepared during the field exploration that describe field occurrences, sampling locations, and other information. Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory and differences may exist between the field logs and the report logs. The engineer preparing the report reviews the field logs, laboratory classifications, and test data and then prepares the report logs. Our recommendations are based on the contents of the report logs and the information contained therein.

REVIEW OF DESIGN DETAILS, PLANS, AND SPECIFICATIONS

SME should be retained to review the design details, project plans, and specifications to verify those documents are consistent with the recommendations contained in this report.

REVIEW OF REPORT INFORMATION WITH PROJECT TEAM

Implementation of our recommendations may affect the design, construction, and performance of the proposed improvements, along with the potential inherent risks involved with the proposed construction. The client and key members of the design team, including SME, should discuss the issues covered in this report so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk, and expectations for performance and maintenance.

FIELD VERIFICATION OF GEOTECHNICAL CONDITIONS

SME should be retained to verify the recommendations of this report are properly implemented during construction. This may avoid misinterpretation of our recommendations by other parties and will allow us to review and modify our recommendations if variations in the site subsurface conditions are encountered.

PROJECT INFORMATION FOR CONTRACTOR

This report and any future addenda or other reports regarding this site should be made available to prospective contractors prior to submitting their proposals for their information only and to supply them with facts relative to the subsurface evaluation and laboratory test results. If the selected contractor encounters subsurface conditions during construction, which differ from those presented in this report, the contractor should promptly describe the nature and extent of the differing conditions in writing and SME should be notified so that we can verify those conditions. The construction contract should include provisions for dealing with differing conditions and contingency funds should be reserved for potential problems during earthwork and foundation construction. We would be pleased to assist you in developing the contract provisions based on our experience.

The contractor should be prepared to handle environmental conditions encountered at this site, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers. Any Environmental Assessment reports prepared for this site should be made available for review by bidders and the successful contractor.

THIRD PARTY RELIANCE/REUSE OF THIS REPORT

This report has been prepared solely for the use of our Client for the project specifically described in this report. This report cannot be relied upon by other parties not involved in the project, unless specifically allowed by SME in writing. SME also is not responsible for the interpretation by other parties of the geotechnical data and the recommendations provided herein.

LABORATORY TESTING PROCEDURES

VISUAL ENGINEERING CLASSIFICATION

Visual classification was performed on recovered samples. The appended General Notes and Unified Soil Classification System (USCS) sheets include a brief summary of the general method used visually classify the soil and assign an appropriate USCS group symbol. The estimated group symbol, according to the USCS, is shown in parentheses following the textural description of the various strata on the boring logs appended to this report. The soil descriptions developed from visual classifications are sometimes modified to reflect the results of laboratory testing.

MOISTURE CONTENT

Moisture content tests were performed by weighing samples from the field at their in-situ moisture condition. These samples were then dried at a constant temperature (approximately 110° C) overnight in an oven. After drying, the samples were weighed to determine the dry weight of the sample and the weight of the water that was expelled during drying. The moisture content of the specimen is expressed as a percent and is the weight of the water compared to the dry weight of the specimen.

HAND PENETROMETER TESTS

In the hand penetrometer test, the unconfined compressive strength of a cohesive soil sample is estimated by measuring the resistance of the sample to the penetration of a small calibrated, spring-loaded cylinder. The maximum capacity of the penetrometer is 4.5 tons per square-foot (tsf). Theoretically, the undrained shear strength of the cohesive sample is one-half the unconfined compressive strength. The undrained shear strength (based on the hand penetrometer test) presented on the boring logs is reported in units of kips per square-foot (ksf).

TORVANE SHEAR TESTS

In the Torvane test, the shear strength of a low strength, cohesive soil sample is estimated by measuring the resistance of the sample to a torque applied through vanes inserted into the sample. The undrained shear strength of the samples is measured from the maximum torque required to shear the sample and is reported in units of kips per square-foot (ksf).

LOSS-ON-IGNITION (ORGANIC CONTENT) TESTS

Loss-on-ignition (LOI) tests are conducted by first weighing the sample and then heating the sample to dry the moisture from the sample (in the same manner as determining the moisture content of the soil). The sample is then re-weighed to determine the dry weight and then heated for 4 hours in a muffle furnace at a high temperature (approximately 440° C). After cooling, the sample is re-weighed to calculate the amount of ash remaining, which in turn is used to determine the amount of organic matter burned from the original dry sample. The organic matter content of the specimen is expressed as a percent compared to the dry weight of the sample.

ATTERBERG LIMITS TESTS

Atterberg limits tests consist of two components. The plastic limit of a cohesive sample is determined by rolling the sample into a thread and the plastic limit is the moisture content where a 1/8-inch thread begins to crumble. The liquid limit is determined by placing a 1/2-inch thick soil pat into the liquid limits cup and using a grooving tool to divide the soil pat in half. The cup is then tapped on the base of the liquid limits device using a crank handle. The number of drops of the cup to close the gap formed by the grooving tool 1/2 inch is recorded along with the corresponding moisture content of the sample. This procedure is repeated several times at different moisture contents and a graph of moisture content and the corresponding number of blows is plotted. The liquid limit is defined as the moisture content at a nominal 25 drops of the cup. From this test, the plasticity index can be determined by subtracting the plastic limit from the liquid limit.



*Passionate People Building
and Revitalizing our World*



PERMITS

Contractor shall contact the below agencies as needed regarding instructions for obtaining permits.

1.01 Work within the Floodplain

- A. Michigan Department of the Environment, Great Lakes, and Energy (EGLE)

1.02 City of Detroit Building Permit

- A. Detroit Buildings, Safety Engineering, and Environmental Department (BSEED)

1.03 Soil Erosion and Sedimentation Control

- A. Wayne County Department of Public Services

1.04 Hydrant Use

- A. Any permits from individual communities that require one for work and/or use of hydrant water.

#20370.00D

City of Detroit Building Authority
Detroit Lower East Side Flood Mitigation Project

BID FORM – UNIT PRICE (SINGLE PRIME CONTRACT)

Detroit Lower East Side Flood Mitigation Project

#20370.00D

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ARTICLE 1 – BID RECIPIENT

- 1.01 This Bid is submitted directly to Bidnet.

City of Detroit Building Authority
1301 Third Street, Suite 328, Detroit, MI
48226

- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 120 days after the Bid Opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

- 3.01 In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied, if any, all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related

reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

Bidder will complete Work in accordance with the Contract Documents for the following prices:

No.	Description	Est. Quantity	Unit	Bid Unit Price	Bid Price
I. BASE BID					
A. SETUP AND PREPARATION					
1	Mobilization (5% Max)	1	LS	\$	\$
2	Traffic Control	1	LS	\$	\$
3	Cash Allowance (Permits)	15,000	DLR	\$1.00	\$15,000.00
SUB-TOTAL SETUP AND PREPARATION				\$	
B. DEMOLITION AND EROSION CONTROL					
4	Existing Seawall, To Be Removed	151	LF	\$	\$
5	Existing Fence, To Be Removed	603	LF	\$	\$
6	Existing Fence Post, To Be Removed	10	EA	\$	\$
7	Sawcut and Remove Existing Pavement	90	SYD	\$	\$
8	Exist. Boulders Remove, Salvage and Reinstall	6	EA	\$	\$
9	Clearing, Trees, Brush as Needed to Grade Berm	0.32	AC	\$	\$
10	Erosion Control Silt Fence	480	LF	\$	\$
11	Structure Rim Adjustment	2	EA	\$	\$
SUB-TOTAL DEMOLITION AND EROSION CONTROL				\$	
C. GRADING AND SEAWALL					
12	Provide and Install New Seawall	533	LF	\$	\$
13	Provide and Install New Seawall Extension	113	LF	\$	\$
14	Provide and Install Approved Material Earth Berm	1	LS	\$	\$
15	A.B. Ford & Lakewood Park Work (Complete)	1	LS	\$	\$
SUB-TOTAL GRADING AND SEAWALL				\$	
D. PAVING AND MISCELLANEOUS IMPROVEMENTS					

16	Provide and Install HMA Pavement/Aggregate Base	94	SYD	\$	\$
17	Provide and Install 2 FT Butt Joint	40	LF	\$	\$
18	8 FT Tall Chain Link Fence	380	LF	\$	\$
SUB-TOTAL PAVING AND MISCELLANEOUS IMPROVEMENTS				\$	
E. SUBSTANTIAL AND FINAL COMPLETION					
19	Restoration	1	LS	\$	\$
SUB-TOTAL SUBSTANTIAL AND FINAL COMPLETION				\$	
II. SUMMARY OF BID					
BASE BID TOTAL = A + B + C + D + E				\$	

AMOUNT WRITTEN

Bidder acknowledges that (1) each Bid Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - C. Contractor's License No.: _____
[or] Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - D. Required Bidder Qualification Statement (EJCDC® C-451) with supporting data and all forms, including required Vendor Clearances provided at: <http://bit.ly/detroitclearances>

ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

[Signature]

[Printed name]

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature]

[Printed name]

Title:

Submittal Date:

Address for giving notices:

Telephone Number:

Fax Number:

Contact Name and e-mail address:

BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

City of Detroit Building Authority
1301 Third Street, Suite 328, Detroit, MI
48226

BID

Bid Due Date: Thursday, October 12, 2023

Description (*Project Name— Include Location*): Detroit Lower East Side Flood Mitigation Project in City of Detroit Building Authority

BOND

Bond Number:

Date:

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid as determined by Owner for the work required by the Contract Documents, provided that:
 - 1.1 If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the penal sum set forth on the face of this Bond, and
 - 1.2 In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.
 - 1.3 Recovery under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

QUALIFICATIONS STATEMENT

Failure to complete this form may result in your Proposal being deemed nonresponsive and rejected without any further evaluation.

LEGAL NAME OF PROPOSING ENTITY _____

PRINCIPAL OFFICE ADDRESS _____

PRIMARY CONTACT _____ PHONE NO _____ EMAIL _____

WEB SITE _____

FORM OF OWNERSHIP (Check One)

Corporation () LLC () Joint Venture ()

State of Incorporation/Registration _____

Date of Incorporation/Registration _____

Limited Partnership () General Partnership () Individual ()

LIST OF PARTNERS, PRINCIPALS, CORPORATE OFFICERS AND OWNERS

Name / Title

Name / Title

LIST OF CORPORATE DIRECTORS

Name

Principal Business Affiliation (Other Than Proposing Entity)

ADDITIONAL INFORMATION REQUIRED BY THE DBA

LIST OF PRINCIPAL STOCKHOLDERS (i.e., those holding 5% or more of the outstanding stock)

Name / Address

Name / Address

FINANCIAL DISCLOSURE/CONFLICTS OF INTEREST:

Identify any contract(s), including any contract involving an employment or consulting relationship, which the firm, or its partners, principals, corporate officers, or owners currently has with the Detroit Building Authority, or with any of its board members or officers.

LATEST CREDIT RATING (Specify if other than Dun and Bradstreet)

I hereby certify that the foregoing business information is true, correct and complete to the best of (my/our) knowledge and belief:

(Name of Proposing Business)

By _____

(Signature)

Date

(Title)

RESPONDENT QUESTIONNAIRE
PART 1 – RESPONDENT EXPERIENCE / ORGANIZATION

1. Respondent's Contact Information

Complete the following table for your Sole Point of Contact During RFP Process.

Single Point of Contact for RFP	Respondent Response
a. Name	
b. Title	
c. Address	
d. E-mail	
e. Phone Number	

Complete the following table for your firm's Partner and or Manager(s) that will be in charge of this project if awarded.

Partner and or Manager Contact Details	Respondent Response
a. Name	
b. Title	
c. Address	
d. E-mail	
e. Phone Number	

2. Respondent Background Information

Complete this table with your background information. Proposals by a partnership or joint venture shall list the full names and addresses of all parties to the joint venture by completing this table for all parties.

	Respondent Response
a. Full legal business name.	
b. Full legal business address of the firm's principal place of business and, if different, the location of the place of performance of the contract.	
c. Business entity designation, e.g., sole proprietor, Inc., LLC, or LLP.	
d. Current tax status and Federal Employer Identification Number (FEIN) (if applicable).	
e. State company formed in.	
f. Company phone number.	
g. Website address (if applicable).	
h. Number of years in business.	
i. Average number of employees during each of the last three (3) years.	
j. Does your company have experience working with the City of Detroit? If so, please list the	

	Respondent Response
contracts you hold or have held with the City of Detroit for the last 5 years.	
k. Identify any claims or lawsuits that have been brought against your organization as a result of any services provided within the last ten (10) years.	
l. Identify any projects in which your contract was terminated for any reason.	

3. Prior Experience (Respondent)

Describe at least **three (3)** relevant experiences from the last five **(5) years** supporting your ability to successfully manage a contract of similar size and scope for the work described in this RFP, by completing the table(s) below. This shall include a description of your firms experience with A/E services and community Engagement services related to designing a cost-efficient recreation centers, parks, or similar municipality facilities as it pertains to the requirements of the project.

Reference Form #1	Respondent Response
a. Name of Reference (Company Name)	
b. Project Name/Title	
c. Client Location	
d. Contact Person Name	
e. Contact Person Title	
f. Contact Person Phone Number	
g. Contact Person E-mail Address	
h. Dates of Service (mm/yy – mm/yy)	
i. Description of Services Provided	
j. Detail your experience in working on recreation centers, parks, or similar. Include information on how you worked with on-site management personnel, patrons, and ownership to ensure that the construction work and patron safety/satisfaction were seamless	

k. Identify any other unique challenges/approaches that you have experienced that will assist the Owner with a successful project.	
l. The firm must describe its philosophy, experience, and methodology in value engineering, identifying, and mitigating project risks beyond General Contractor control and constructability analysis. Provide examples of both value engineering reports and risk/constructability analyses developed and utilized on prior projects and the results obtained.	
m. Identify respondent's key personnel working on this project (if applicable)	

Reference Form #2	Respondent Response
a. Name of Reference (Company Name)	
b. Project Name/Title	
c. Client Location	
d. Contact Person Name	
e. Contact Person Title	
f. Contact Person Phone Number	
g. Contact Person E-mail Address	
h. Dates of Service (mm/yy – mm/yy)	
i. Description of Services Provided	
j. Detail your experience in working on recreation centers, parks, or similar. Include information on how you worked with on-site management personnel, patrons, and ownership to ensure that the construction work and patron safety/satisfaction were seamless	

k. Identify any other unique challenges/approaches that you have experienced that will assist the Owner with a successful project.	
l. The firm must describe its philosophy, experience, and methodology in value engineering, identifying, and mitigating project risks beyond General Contractor control and constructability analysis. Provide examples of both value engineering reports and risk/constructability analyses developed and utilized on prior projects and the results obtained.	
m. Identify respondent's key personnel working on this project (if applicable)	

Reference Form #3	Respondent Response
a. Name of Reference (Company Name)	
b. Project Name/Title	
c. Client Location	
d. Contact Person Name	
e. Contact Person Title	
f. Contact Person Phone Number	
g. Contact Person E-mail Address	
h. Dates of Service (mm/yy – mm/yy)	
i. Description of Services Provided	
j. Detail your experience in working on recreation centers, parks, or similar. Include information on how you worked with on-site management personnel, patrons, and ownership to ensure that the construction work and patron safety/satisfaction were seamless	

k. Identify any other unique challenges/approaches that you have experienced that will assist the Owner with a successful project.	
l. The firm must describe its philosophy, experience, and methodology in value engineering, identifying, and mitigating project risks beyond General Contractor control and constructability analysis. Provide examples of both value engineering reports and risk/constructability analyses developed and utilized on prior projects and the results obtained.	
m. Identify respondent's key personnel working on this project (if applicable)	

4. Respondent's Subcontractor(s) Prior Experience (if applicable)

Question	Respondent Response
a. Do you intend to utilize any subcontractors? <i>If yes, provide their legal business name and address, and a description of the goods/services they will supply. Also complete the Subcontractor Reference Form provided below for each subcontractor.</i>	

If applicable, describe below at least **one (1)** relevant experience from the last five **(5) years** supporting your subcontractor's ability to successfully perform similar work as set forth in your company's proposal.

Subcontractor Reference Form	Respondent Response
a. Name of Reference (Company Name)	
b. Project Name/Title	
c. Client Location	
d. Contact Person Name	

e. Contact Person Title	
f. Contact Person Phone Number	
g. Contact Person E-mail Address	
h. Dates of Service (mm/yy – mm/yy)	
i. Description of Services Provided	

PART 2 – RESPONDENT CAPACITY

5. Respondent Capacity and Staffing

The Selection Committee will also evaluate the ability of the prospective Respondent to meet the terms of this RFP relative to having a management team with the qualifications needed to successfully complete each work item. Qualifications of professional personnel assigned to the work items, as specified in the proposal, including sub-consultants, will be measured by both education and experience, with particular reference to experience on projects similar to that described in the Scope of Work. The Respondent's professional staff who will work on the project must be the same staff identified in the proposal. The GSD must approve all sub-consultants/sub-contractors. The selection committee will evaluate the Respondent's ability to complete relevant work commitments successfully and within time and budgetary constraints. If selected, the firm agrees that it will provide, for the duration of the project, the full complement of staff, including the specific persons identified in this RFP, unless otherwise approved by the Owner.

The Respondent must submit documentation indicating their capacity to perform the variety of services described in this RFP. Documentation should indicate, at a minimum, the following:

- a. Respondent shall clearly identify the project staffing they intend to utilize for the project; including all key project staff, their roles and responsibilities and at what phases of the project they will be utilized.
- b. Respondent shall identify the day-to-day contacts for each phase of the project.
- c. Respondent shall include a description of the experience of each person assigned to this project as well as the level of effort, as a percentage of time, to be committed and for which phases of the project (preconstruction, construction). Qualifications and references must demonstrate that the construction team has had successful experience with projects of similar size, scope, and conditions.
- d. Respondent shall provide an organization chart indicating the key personnel who will provide services resulting from this RFP.
- e. Respondent shall provide a detailed resume for each of the key personnel who will provide services resulting from this RFP.

Vendor Clearances

The city has moved to an online combined clearance application. Please submit your clearance application online: <http://bit.ly/detroitclearances>

Vendors must have their approved clearances through the city prior to beginning work.

DISPOSAL OF MATERIAL AFFIDAVIT

_____, a Corporation/Partnership/Limited Liability Company/Joint Venture of the State of _____ hereby affirms that it is our intention to dispose of unused materials at one of the following sites; and that we have in our possession a valid purchase order, letter of credit, or written agreement from the operator of the disposal site:

(1) Name: _____

Location: _____

(2) Name: _____

Location: _____

Further, if these sites become unavailable, we will give prior notice to the DBA regarding the location of a new site.

Further, it is understood and agreed that dumping material at an unauthorized or illegal location shall be cause for cancellation of the remaining portion of the Contract Agreement and that neither the City of Detroit nor the DBA shall be held liable for any claim or cause of action arising there from.

Further, it is understood that the DBA may require written evidence, furnished upon request, (i.e. dump ticket, invoices, etc.) verifying that the above disposal sites were used for the disposal of materials under the Contract Agreement and that such evidence shall be.

(Bidder)

(Signature)

(Title)

(Date)

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public, Wayne County, Michigan

My Commission Expires: _____

Equalization Credit Statement (Effective March 1, 2019)

The City of Detroit through its Office of Contracting and Procurement and its department of Civil Rights, Inclusion & Opportunity where applicable and allowed by law that all certified businesses will receive equalization credits and competitive advantages for procurement and contracting bidding opportunities with the City of Detroit.

Under Section 18-5-12 of the Detroit City Municipal Code, vendors qualify for equalization credits if they have been certified as a Detroit Based (D-BB) or Detroit Resident Business (D-RB). There are additional equalization credits for those businesses who are also Detroit Headquartered (D-HB), Detroit Based Small Business (D-SB), Detroit Based Micro Business (D-MB), Joint Venture, or Mentor Venture.

If your company has been certified by the City's Civil Rights, Inclusion & Opportunity Department include your valid Business Certificate at the time you submit your bid in order to receive equalization pricing credits, if any.

If your company is not certified and is interested in becoming certified or want to learn more about the many benefits of certification please call 313.224.4950 or email CivilRightsCert@detroitmi.gov.

More information can be found at: www.detroitmi.gov/departments/civil-rights-inclusion-opportunity-department/certification-and-business-registry.

If proposing a Joint Venture, include a copy of the written agreement at the time you submit your bid in order to receive equalization pricing credits, if any, between the separate firms, one of which must be a D-BB, D-SB, D-RB, or D-MB (include their Business Certificate), which has been created to perform a specific contract, and at a minimum:

- Substantially included in all phases of the contract, including, but not limited to bidding and staffing;
- Provides at least fifty-one percent (51%) of the total performance, responsibility, and project management of a specific job;
- Receives at least fifty-one percent (51%) of the total remuneration from a specific contract; and
- Shares in profits and losses.

If proposing a Mentor Venture, include a copy of the written agreement at the time you submit your bid in order to receive equalization pricing credits, if any, between the separate firms, one of which must be a D-BB, D-SB, D-RB, or D-MB (include their Business Certificate), which has been created to perform a specific contract, and at a minimum:

- Substantially included in all phases of the contract, including, but not limited to bidding and staffing;
- Provides at least thirty percent (30%) of the total performance, responsibility, and project management of a specific job;
- Receives at least thirty percent (30%) of the total remuneration from a specific contract; and
- Shares in profits and losses.

Equalization Allowance Table for Detroit Based Business and Detroit Resident Business	
Contract Amount	Equalization Percentage
Up to \$10,000.00	5%
\$10,000.01 to \$100,000.00	4%
\$100,000.01 to \$500,000.00	3%
\$500,000.01 and over	2%

Additional Equalization Allowance Table	
Detroit Headquartered Business	3%
Detroit Small Business*	1%
Detroit Micro Business*	2%
Joint Venture**	2%
Mentor Venture**	1%

*Business can only be either Detroit Small Business or Detroit Micro Business; it cannot be both.

**Business can only be either a Joint Venture or Mentor Venture; it cannot be both.

**EXECUTIVE ORDER 2021-
02**

**TO: ALL BOARDS, COMMISSIONS, DEPARTMENT DIRECTORS,
CITY COUNCIL MEMBERS, CITY CLERK.**

FROM: MICHAEL E. DUGGAN, MAYOR

**SUBJECT: UTILIZATION OF DETROIT RESIDENTS ON PUBLICLY
FUNDED CONSTRUCTION AND DEMOLITION/REHAB
PROJECTS**

DATE: APRIL 14, 2021

WHEREAS, the economic revitalization of Detroit depends upon the employment of Detroit residents and the availability of a local skilled workforce; and

WHEREAS, it is the policy of this Administration to encourage and maximize employment opportunities for well-trained Detroit residents through contracts with the City contracts and in projects funded or financially assisted by the City;

THEREFORE, this Executive Order directs any person or entity entering into a publicly-funded construction project or a publicly-funded demolition/rehab project to implement specific residency targets for its workforce, as follows. Other persons or entities doing business with the City, but not subject to this Executive Order, may voluntarily agree to be bound by some or all of the substantive requirements set forth herein.

1. The term "publicly-funded construction project," for purposes of this Executive Order, means:

- (a) any construction project performed under a contract, the value of which is more than \$3,000,000.00 (Three Million Dollars), made by the City with any person or entity; and
- (b) any construction project for which the City, public or quasi-public entities affiliated with the City, or any of their agents or contractors provides funds or financial assistance via any of the following methods, where total value of such assistance is more than \$3,000,000.00 (Three Million Dollars):

- (1) The sale or transfer of land below its appraised value;
- (2) Direct monetary support; ·
- (3) Public contributions originated by the State of Michigan or its agencies, the United States government or its agencies, or any other non-City government
entity, for which City approval is required and obtained; or
- (4) Tax increment financing. For purposes of calculating the total assistance directly provided through tax increment financing, tax revenue that would have accrued to all government entities shall be counted.

2. The term "publicly-funded demolition/rehab project," for purposes of this Executive Order, means any demolition or rehabilitation of one or more residential buildings performed under the Proposal N Neighborhood Improvement Plan, under a contract, the value of which is more than \$50,000 (Fifty Thousand Dollars), made by the City with any person or entity.

3. A "bona-fide Detroit resident," for purposes of this Executive Order, means an individual who can demonstrate residency in the City of Detroit as of a date at least thirty (30) days prior to the date the individual seeks to be employed on a publicly-funded construction project or publicly-funded demolition/rehab project. An individual may demonstrate residency by producing at least one item from each of the two lists below that includes an address located in the City of Detroit. Other forms of proof-of-residency may be accepted under unique circumstances.

- (a) State of Michigan identification card, State of Michigan driver's license, or Detroit municipal ID; and
- (b) Voter Registration Card, Motor Vehicle Registration, most recent federal, state, or City of Detroit tax return, lease/rental agreement, most recent utility bill or utility affidavit signed by a landlord with respect to a leased residence, or most recent municipal water bill.

4. All contracts with the City, and all sub-contracts thereof, for a publicly-funded construction project or a publicly-funded demolition/rehab project shall require at least 51% of the workforce for such project to be bona-fide Detroit residents. This requirement shall be referred to as the "Workforce Target." The Workforce Target shall be measured by the hours worked by bona-fide Detroit residents on the publicly-funded construction project or publicly funded demolition/rehab project.

5. Developers, general contractors, prime contractors and subcontractors on publicly-funded construction projects and publicly-funded demolition/rehab projects are all required to comply with the terms of this Executive Order. Collectively, these entities are hereinafter referred to as "contractors." It is, however, the sole responsibility of the person or entity contracting directly with the City of Detroit to require all of its

subcontractors either to

(a) meet the Workforce Target; or (b) make the required contribution to the City's Workforce Training Fund, as provided in Paragraph 6 of this Executive Order. Contractors may utilize local unions, Detroit Employment Solutions Corporation, or other entities to help meet the Workforce Target. Failure to satisfy the requirements of this Executive Order shall constitute a material breach of contract and may result in the immediate termination of the contract.

6. Upon execution of a contract for a publicly-funded construction contract or publicly-funded demolition/rehab project, the City of Detroit's Civil Rights, Inclusion and Opportunity Department ("CRIO") shall determine whether the Workforce Target in the contract shall be measured periodically either (a) monthly or (b) quarterly. This period shall be referred to as the "measurement period." Thereafter, for the duration of the construction project, the contractor shall, at the end of each measurement period, submit to CRIO a report indicating:

- (a) The total hours worked on the project during the preceding measurement period ("total work-hours");
- (b) The total hours worked on the project by bona-fide Detroit residents during the preceding measurement period; and
- (c) If applicable, the amount by which the contractor fell short of meeting the Workforce Target. A contractor falling short of the Workforce Target shall report both (a) the raw number of total work-hours by which the contractor fell short of the Workforce Target; and (b) the percentage of total work-hours by which the contractor fell short of the Workforce Target.

7. A contractor who does not meet the Workforce Target in any measurement period shall help strengthen Detroit's workforce by making a monetary contribution to the City's CRIO-administered Workforce Training Fund, thereby supporting the skill development of Detroit residents. The required contribution for any contractor who does not meet the Workforce Target shall be the sum of the following:¹

- (a) For each work-hour comprising the first 10% of total work-hours by which the contractor fell short of the Workforce Target, 5% of the average hourly wage paid by the contractor during the preceding measurement period.
- (b) For each work-hour comprising the second 10% of total work-hours by which the contractor fell short of the Workforce Target, 10% of the average hourly wage paid by the contractor during the preceding measurement period.
- (c) For each work-hour comprising the remaining 31% of total work-hours by which the contractor fell short of the Workforce Target, 15% of the average hourly wage paid by the contractor during the preceding measurement

period.

8. For a publicly funded construction project, if a contractor contracts for labor through a union that is meeting the goals set for it under the Detroit Skilled Trades Employment Program, that contractor will be deemed to have met the Workforce Target with respect to the labor for which it contracted through such a union.

¹ Thus, for example, if 25% of the total work-hours performed on a publicly-funded construction project were performed by bona-fide Detroit residents, the contractor will have fallen short of the Workforce Target by 26% of the total work-hours. That contractor's minimum required contribution would be the sum of (1) 5% of the average hourly wage for 10% of the total work-hours; (2) 10% of the average hourly wage for 10% of the total work-hours; and (3) 15% of the average hourly wage for 6% of the total work-hours.

CRIO will make a periodic determination whether a union participating in the Detroit Skilled Trades Employment Program is meeting its established goals under that Program. For purposes of calculating a contractor's compliance with the Workforce Target, a union which, as of the date a contractor executes a contract or subcontract for a publicly-funded construction project, is meeting its goals under the Program shall be deemed to have no less than 51% of the hours worked by its members on the publicly-funded construction project worked by bona fide Detroit residents. If bona-fide Detroit residents actually account for more than 51% of the hours worked by union members on a publicly-funded construction project, that actual percentage may be used for purposes of calculating compliance with the Workforce Target.

9. For a publicly-funded demolition/rehab project, if bona-fide Detroit residents actually account for more than 51% of the hours worked and the contractor pays for its Detroit employees to be trained under a DOL approved apprenticeship program, that contractor will be deemed to have met the Workforce Target. For purposes of publicly-funded demolition/rehab projects only, any contractor who fails to meet the Workforce Target will contribute \$200 per employee to the Workforce Training Fund.

10. If CRIO determines a contractor is in non-compliance with the requirements of this Order, CRIO will notify the contractor, in writing, of the contractor's non-compliance.

If a contractor wishes to challenge a finding of non-compliance, the contractor may, within fifteen

(15) days of the notice of non-compliance, file with CRIO a written notice challenging the finding of non-compliance, and detailing the reasons for that challenge. The challenge will then be forwarded to a panel of (1) the City's Corporation Counsel or his/her designee; (2) the head of the Department of Administrative Hearings or his/her designee; and (3) the Director of the Buildings, Safety, Engineering, and Environment Department, or his/her designee. The panel shall adjudicate the challenge and issue a written decision. The panel may, but need not, schedule an oral hearing on the challenge.

If, following written notice of non-compliance and the adjudication of any challenge, the contractor fails or refuses to take corrective actions within thirty (30) days, the City may do any of the following:

- (a) withhold from the contractor all future payments under the contract until it is determined that the contractor is in compliance;
- (b) refuse all future bids on City projects or applications for financial assistance in any form from the City or any of its departments, until such time as the contractor demonstrates that it has cured its previous non-compliance;
- (c) debar the contractor from doing business with the City for a period of up to one year.

In addition, the City reserves the right to re-bid the contract, in whole or in part, or hire its own workforce to complete the work.

11. All construction contracts, construction contract amendments, change orders and extensions subject to this Executive Order shall include the applicable terms of this

Executive Order. CRIO shall have the responsibility for preparing administrative guidelines related to this Executive Order, and for monitoring and enforcing the provisions of this Executive Order.

1. Notwithstanding anything to the contrary set forth herein, the requirements set forth in Paragraphs 4 through 11 of this Executive Order shall not apply to any publicly funded construction contract or publicly-funded demolition/rehab contract, or part thereof, that is funded by a grant awarded by a federal, state, or other governmental entity, the terms of which prohibit the implementation of any such requirements.

Pursuant to the powers vested in me by the 1963 Michigan Constitution and by the 2012 Detroit City Charter, I, Michael E. Duggan, Mayor of the City of Detroit, issue this Executive Order. This Executive Order is effective upon its execution and filing with the City Clerk and supersedes Executive Order No. 2020-5, issued by me on November 20, 2020. This Executive Order shall not alter or affect the operation of any prior Executive Order with respect to any publicly-funded construction project on which construction activities have commenced as of the date of this Executive Order.



MICHAEL E. DUGGAN

MAYOR
CITY OF DETROIT

FINANCIAL STATEMENTS AFFIDAVIT

Were the financial statements required by and submitted to the surety company that will provide payment and performance bonds for this project solely the financial statements of the Respondent, or were such financial statements inclusive of or supplemented by the financial statements or assets of a parent company, subsidiary company, affiliated company or other guarantor or indemnitor? The Affidavit below is to be submitted in response to this question.

AFFIDAVIT

I, _____, the duly authorized representative of _____, being duly sworn, hereby certify and affirm that the repayment of funds paid on claims on the payment and performance bonds issued for the _____ Project

(the "Project") is secured solely by the assets of _____.

If the financial statements submitted to the company's surety company for the Project were inclusive of or supplemented by other companies, guarantors or indemnitors, please list below the name(s) and address(es) of such other company (ies), guarantor(s) or indemnitor(s).

1. _____

2. _____

3. _____

4. _____

Further, the affiant deposes and saith not.

[COMPANY]

By: _____

Its:

STATE OF MICHIGAN)) SS.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 20__, by _____, the _____ of _____ on behalf of said corporation.

_____, Notary Public
_____ County, Michigan
My Commission Expires: _____

AFFIDAVIT OF DISCLOSURE OF INTERESTS BY CONTRACTORS AND VENDORS
Instructions. This disclosure affidavit fulfills requirements of Section 2-106.2 and Section 4-122 of the 2012 Detroit City Charter and Section 2-6-34 of the 1984 Detroit City Code. Please complete all applicable sections by typing or legibly printing. Where a section does not apply, please check the appropriate box and skip to the next section. If necessary, provide additional information on page 4 or attach additional documents to this disclosure affidavit. This disclosure affidavit must be signed and notarized **and filed with the City of Detroit Board of Ethics, Butzel Family Center 7737 Kercheval Suite 213 Detroit, MI 48214 (City Code § 2-6-34(b)).**

Note: “**Immediate family member**” of a person is that person’s spouse, domestic partner, an individual living in the person’s household, or an individual claimed as a dependent or spouse’s dependent under the Internal Revenue Code. (City Charter § 2-105.A.20; City Code § 2-6-3)

Section 1 - Identity of Contractor/Vendor (City Charter § 2-106.2.2; City Code § 2-6-34)

Provide the complete name of the individual, company or other entity or organization making this disclosure:

Name _____

Street
address _____

City _____ State _____ Zip
code _____

Telephone _____ Fax _____ Email

If the filer is a business entity, print the name, title, and contact information of the authorized individual signing for the business entity:

Name _____ Title

Telephone _____ Fax _____ Email

Section 2 - Financial Interests in Matters Pending Before City (City Charter § 2-106.2.2; City Code § 2-6-34(a)(1), (2))

The above named contractor or vendor or an immediate family member thereof

- ☐ has *(if checked, complete rest of section below)*
☐ does not have *(if checked, skip to next section)*

a financial interest, direct or indirect, in the following matters that are pending before ☐
the Detroit City Council or ☐ the following office, department or agency of the City

Matter

Interested Party (if an immediate family member, please provide an address and phone number and the nature of the relationship to the filer): Name

StreetAddress

City

 State

 Zipcode

Telephone

 Relationship

Nature of financial interest

Estimated value of the financial interest

Section 3 - Interests in Property Subject to Decision by City (City Code § 2-6-34(a)(3))

The above named contractor or vendor or an immediate family member thereof

☐ has (if checked, complete rest of section below)☐ does not have (if checked, skip to next section)

an interest in real or personal property that is subject to a decision by the City regarding the purchase, sale, lease, zoning, improvement, special designation tax assessment or abatement, or a development agreement.

Interested Party (if an immediate family member, please provide an address and phone number and the nature of the relationship to the filer): Name

StreetAddress

City

 State

 Zipcode

Telephone

 Relationship

Description of real or personalproperty

Nature of interest

Estimated value of the interest

Section 4 – Political/Campaign Contributions and Expenditures (City Charter § 4-122; City Code § 2-6-34(a)(4))

- ☐ The Statement of Political Contributions and Expenditures required by City Charter § 4-122, ¶ 2, is attached as an exhibit to this disclosure affidavit, and is current and accurate as of the date stated therein.

The above named contractor or vendor

- ☐ is *(if checked, attach most recent report to this disclosure)*
- ☐ is not *(if checked, skip to next section)*

required to file reports of campaign contributions and expenditures in accordance with other applicable law.

Section 5 - Immediate Family Members Employed by or Seeking Employment with City (City Code § 2-6-34(a)(5))

Please identify any immediate family member who is employed by or making application for employment with the City of Detroit.

If none, check here ☐ and skip to next section; otherwise, complete rest of section below:

Name

Street address

City _____ State _____ Zip _____
code _____

Phone

Nature of relationship to filer

Department/agency employed by or seeking employment with

Position held or sought

Section 6 - Persons with Financial Interest in Contractor's/Vendor's Matters Pending Before City (City Code § 2-6-34(a)(6), (7))

Please identify all persons or entities having a financial interest, direct or indirect, in any matter the contractor or vendor has pending before the Detroit City Council or before any office, department or agency of the City. Complete on additional page(s), if necessary.

If none, check here ☐ and skip to next section; otherwise, complete rest of section below

Name

Street Address

City _____ State _____ Zip _____
code _____Contract or matter in which the person or entity named has an interest

The above contract or matter is pending before ☐ the Detroit City Council or ☐ the following office, department or agency of the City

Nature of financial interest

Estimated value of the financial interest

Section 7 - Affirmation of Accuracy of Disclosure (City Charter § 2-106.2.3; City Code § 2-6-34(b))

I understand that the information provided in this disclosure will be relied upon by the City of Detroit in evaluating the proposed bid, solicitation, contract, or lease. I swear [or affirm] that the information provided is accurate. If I am signing on behalf of an entity, I swear [or affirm] that I have the authority to provide this disclosure on behalf of the entity.

Sign name:

Print name:

Sworn and subscribed to before me on _____, 20__

[by _____, the

[name] [title]
of the above named contractor/vendor, an authorized representative or agent of the
contractor/vendor].

Sign: _____

Print: _____

Notary Public, _____ County, Michigan,

Acting in _____ County

My Commission Expires:

DRAFT Construction Services Agreement Form

CITY OF DETROIT BUILDING AUTHORITY
CONSTRUCTION SERVICES AGREEMENT

WITH

THIS AGREEMENT, dated and made effective as of this _____ day of _____, 2023 (hereinafter called the "Agreement"), by and between the **CITY OF DETROIT BUILDING AUTHORITY**, a public authority and body corporate organized and existing under the authority of Act 31, Public Acts of Michigan, 1948 (First Extra Session), as amended, located at 1301 Third Avenue, Suite 328, Detroit, Michigan 48226 (herein called the "Authority") and _____, a _____, with offices at _____ (hereinafter called the "Contractor").

WITNESSETH:

WHEREAS, the Authority has determined that it is necessary to engage the Contractor to _____ (the "Project"); and

WHEREAS, the services necessary for the implementation of the Project (herein collectively called the "Services") are described in Exhibit A, hereto, and are to be performed in accordance with this Agreement and said Exhibit A; and

WHEREAS, the Contractor has the requisite skills necessary to assist the Authority and represents that it is fully qualified and capable of performing the Services required hereunder upon the terms and conditions hereinafter set forth; and

WHEREAS, the Authority has adopted or will adopt a resolution authorizing the engagement of the Contractor for the Services.

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, the parties agree as follows:

ARTICLE I

Engagement of Contractor

1.01 The Authority hereby engages the Contractor and the Contractor agrees to perform the Services as set forth in Exhibit A to this Agreement in accordance with the terms and conditions contained in this Agreement.

1.02 The relationship of the Contractor and the Authority shall be that of an independent contractor and no liability or benefits, such as retirement benefits or liabilities, pension rights or liabilities, holiday pay, sick pay, vacation pay, personal injury or property insurance rights or liabilities, or such other rights, provisions or liabilities arising out of a contract of hire or employer/employee relationship either express or implied shall arise or accrue to either party as a result of this Agreement and undertaking.

ARTICLE II

Level of Performance, Warranty, Documents and Dispute Resolution

2.01 The Contractor warrants that its performance of the Services set forth in Exhibit A shall be of the highest standard of care and skill executed by expert members of its trade. All of the Services shall be subject to the approval of the Authority or such other representative as may be designated by the Authority.

2.02 The Contractor shall during the term of the Agreement, devote such time, attention, skill, knowledge and ability as is necessary to carry out and perform the Services, as herein required.

2.03 The Contractor warrants and represents that all materials and equipment included in its work hereunder are new, unless otherwise specified, and that the work is of good quality, free from improper workmanship and defective materials and in conformance with design documents for the Project. Any portion of the work that does not conform to the contract documents for the Project, including substitutions not properly approved and authorized, may be considered defective and shall be replaced by the Contractor without cost to the Authority upon discovery by the Authority. The Contractor shall correct defects in materials and/or workmanship for a period of one (1) year from the final completion date of the phase in which such portion of the work is included or final completion of this Agreement, whichever is longer. The Contractor shall collect and deliver to the Authority, in bound and indexed form, all written warranties on materials, equipment and installations. All warranties shall commence on the final completion date of the phase in which such work is included, unless otherwise defined by the contract documents. The Contractor shall warrant by sworn statements and waivers of lien that title to the work invoiced in its progress payment application will pass to the Authority upon receipt of payment by the Authority. The Contractor shall warrant that all completed work covered by an application for payment is free and clear of all liens, claims, security interests, or encumbrances, and that no portions of the work, materials, or equipment has been acquired by the Contractor, or by any other person performing any portion of the work, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the other person or can be otherwise imposed on the Contractor by such other persons. The Contractor

and all subcontractors shall agree that title will so pass upon the Contractor's receipt of payment from the Authority.

2.04 The Contractor agrees to provide copies of any documents furnished to the Authority as part of the Project, if requested by the Authority, to the office of the Mayor of the City of Detroit.

2.05 Unforeseen Site Conditions

2.05.1 If the Contractor discovers one or both of the following physical conditions of the surface or subsurface at the Project site, before disturbing the physical condition, the Contractor shall promptly notify the Authority of the physical condition in writing:

- (a) A subsurface or other latent physical condition at the site differs materially from the condition indicated in the Contract Documents.
- (b) A previously unknown physical condition at Project the site is of an unusual nature differing materially from conditions ordinarily encountered and generally recognized as inhering in work of the character provided for in the Agreement.

2.05.2 If the Authority receives a notice under Section 2.05.1, the Authority shall promptly investigate the physical condition.

2.05.3 If the Authority reasonably determines that the physical conditions do materially differ and will cause an increase or decrease in costs or additional time needed to perform the contract, the Authority's determination shall be made in writing and an equitable adjustment shall be made and the Agreement modified in writing accordingly.

2.05.4 The Contractor cannot make a claim for additional costs or time because of a physical condition unless the Contractor has complied with the notice requirements of Section 2.05.1. The Authority may extend the time required for notice under Section 2.05.1.

2.05.5 The Contractor cannot make a claim for an adjustment under the Agreement after the Contractor has received the final payment under the Agreement.

2.06 In the event that there shall be any dispute between the parties with regard to the extent and character of the Services to be performed, the reasonable interpretation and determination of the Authority or such other representative as may be designated by the Authority shall govern.

2.07 Additional Services

2.07.1 The following services are not included in Services and shall only be performed by the Contractor upon the written request of the Authority, as follows:

2.07.2 Work not included in the Services described in Exhibit A.

2.07.3 Preparation to serve as a witness on behalf of the Authority in connection with any public hearing, arbitration proceeding or legal proceeding in which the Contractor is not a party.

2.07.4 Provision of any other services not otherwise included in this Agreement.

ARTICLE III

Contract Term

3.01 The Services to be performed by the Contractor pursuant to the terms of this Agreement shall begin on the date the Authority sends the Contractor a notice to proceed with the Project (the "Effective Date"), and shall be complete not later than _____, 2023, (the Contract Term), unless, the term of this Agreement is otherwise extended in writing by the Authority.

ARTICLE IV

Compensation

4.01 The Authority agrees to pay the Contractor for the proper performance of the Services and the Contractor guarantees that it will complete the Services described in Exhibit A hereto for a total amount not to exceed _____ and 00/100 (\$ _____) Dollars.

4.02 It is understood and agreed by the parties hereto that the fee stated above for performance of Services is inclusive of any and all remuneration to which the Contractor may be entitled and that the Contractor shall not receive any fringe benefits including but not limited to overtime pay, holiday pay, sick pay, vacation pay, retirement benefits, pension benefits and insurance benefits in addition to or in lieu of those expressly stated herein.

4.03 Any additional services requested by the Authority of the Contractor shall be payable as mutually agreed upon in writing between the Authority and the Contractor.

4.04 Requests for progress payments shall be submitted by _____, or by another duly authorized representative of the Contractor to Tyrone Clifton or the current

Director of the Authority. At the election of the Authority, the parties shall submit disputes regarding the retention of a portion of progress payments in accordance with MCLA 125.1564(1).

ARTICLE V

Method of Payment

5.01 Payment for the proper performance of Services, including installation of equipment required hereunder, shall be made in accordance with the Payment Procedures attached hereto and incorporated herein as Attachment A.

5.02 The Contractor shall receive payment for the proper performance of Services approved by the Authority hereunder, in accordance with Section 5.01 of this Agreement.

ARTICLE VI

Assignments

6.01 The parties hereto having acknowledged that this Agreement is based upon the qualifications of the Contractor further agree that the Contractor shall not assign, subcontract or transfer its interest in this Agreement without the prior written consent of the Authority.

ARTICLE VII

Events of Default and Remedies

7.01 The following acts and/or omissions shall constitute a default and material breach of this Agreement by the Contractor and shall be deemed an Event of Default if not cured within five (5) business days after written notice of default has been sent by the Authority to the Contractor, provided however, that if the default is such that more than five (5) days are required for a cure, then Contractor shall not be in default if it commences to cure the default within the five (5) day period and thereafter diligently prosecutes the same to completion:

- (a) Failure to comply with any of the material terms and conditions of this Agreement following written notice from the Authority and failure to cure; and/or
- (b) Failure to begin the Services in accordance with the terms of this Agreement; and/or
- (c) If the Contractor, in the judgment of the Authority, is unnecessarily or unreasonably or willfully delaying the performance and completion of the Services; and/or
- (d) The Contractor abandons the Services to be undertaken; and/or
- (e) The Authority reasonably believes that the Services cannot be completed within the time required, where in the Authority's judgment, the delay is attributable to conditions within the Contractor's control; and/or
- (f) The Contractor, without just cause, reduces its personnel to a number which in the judgment of the Authority, is insufficient to complete the

Services within a reasonable time and fails to sufficiently increase such personnel when directed to do so by the Authority; and/or

- (g) The Contractor assigns, transfers, conveys or otherwise disposes of this Agreement, in whole, or in part, without prior approval of the Authority; and/or
- (h) Any Authority officer or employee acquires an interest in this Agreement so as to create a conflict of interest; and/or
- (i) The Contractor violates any law, charter provision, ordinance, rule, regulation, governmental order or directive; and/or
- (j) Failure to provide adequate inventory, vehicles, equipment and/or personnel; and/or
- (k) The filing of a voluntary or involuntary petition in bankruptcy or for reorganization or an arrangement, or an assignment for the benefit of creditors, or the adjudication of the Contractor as being bankrupt or insolvent, or the appointment of a receiver of, or for the Contractor if such appointment, adjudication, or similar order or ruling remains in force or unstayed for a period of thirty (30) days, or admit in writing its inability to pay its debts generally as they become due; and/or
- (l) The Contractor's level of performance of the Services, in the reasonable judgment of the Authority falls below the standard of care set forth in Article II hereof and/or
- (m) The Contractor ceases to conduct business in the normal course, and/or
- (n) The Contractor fails to comply with any material terms, conditions and/or obligations of Contractor set forth herein.
- (o) The Contractor fails to pay any labor, tax obligations, fringe benefit funds, insurance premiums, or subcontractor invoices for Services which the Contractor has received payment from the Authority.

7.02 In the Event of Default by the Contractor, the Authority shall be entitled to exercise any and all remedies available at law and/or in equity, including, but not limited to the right to seek and sue for damages, any costs incurred to enforce, or attempt to enforce this Agreement, including reasonable attorney's fees, which enforcement shall not be limited, and may include appeals of any decisions in lower courts, as well as collection efforts thereafter, compensable damages and consequential damages, withhold and retain payment to the Contractor for the purpose of setoff until such time as the exact amount of damages due to the Authority from the Contractor is determined, seek injunctive relief and/or specific performance and such other equitable remedies that are available, as well as effectuate a termination of this Agreement, which may or could give rise to additional damages. It is expressly understood that the Contractor will remain liable for any damages the Authority sustains in excess of any set-off.

ARTICLE VIII

Termination

8.01 The Authority may terminate this Agreement in whole or in part for cause upon giving written notice of termination (herein called "Notice of Termination") to the Contractor at least fifteen (15) days before the Effective Date of the termination, should the Contractor: 1) fail to fulfill in a timely and proper manner its obligations under this Agreement; 2) violate any of the covenants, agreements, or stipulations of this Agreement; 3) cease conducting business in the normal course by reason of insolvency, bankruptcy or any similar proceedings, whether

voluntary or involuntary, filed under any present or future bankruptcy or other applicable law; or 4) admit in writing its inability to pay its debts generally as they become due. The Contractor shall be liable to the Authority for damages sustained by the Authority by virtue of the Contractor's breach and shall be liable for any reasonable costs the Authority might incur enforcing or attempting to enforce this Agreement, including reasonable attorney fees. The Authority may withhold any payment(s) to the Contractor for the purpose of set-off until such time as the exact amount of damages due the Authority from the Contractor is determined. It is expressly understood that the Contractor will remain liable for any damages the Authority sustains in excess of any set-off. If this Agreement is so terminated the Authority may take over the Services, and prosecute the same to completion by contract with another party or otherwise, and the Contractor shall be liable to the Authority for any and all costs incurred by the Authority thereby.

8.02 The Contractor may terminate this Agreement in whole or in part for cause upon giving Notice of Termination to the Authority at least thirty (30) business days before the Effective Date of the termination, should the Authority fail to fulfill in a timely and proper manner its obligations under this Agreement. Other than being liable potentially for the payment(s) expressly set forth in this agreement, or as it has been amended, under no circumstances will the Detroit Building Authority, or any of its employees, representatives or agents be responsible for punitive, incidental or consequential damages arising from the Detroit Building Authority's performance or non-performance of any term(s) of this Agreement."

8.03 The Authority may terminate this Agreement without cause, in whole or in part, for its convenience, at any time, without incurring any further liability whatsoever, other than as stated in this Article VIII, by issuing a Notice of Termination to the Contractor of such termination, specifying the Effective Date thereof, at least fifteen (15) business days prior to the Effective Date of such termination. If this Agreement is so terminated, the Authority will pay the Contractor only for the Services rendered prior to such termination, including any retainage for the Services previously performed. The amount of the payment shall be computed by the Authority on the basis of the Services rendered and accepted by the Authority; any expenses incurred prior to termination; bona fide termination settlement costs reasonably incurred by the Contractor, as determined by the Authority relating to the commitments which had become firm prior to the termination, but only to the extent that the Contractor could not have mitigated the same; and such other costs as, in the judgment of the Authority, represent a fair value of the Services provided, less the amount of any previous payments made. Should the Authority or the Authority's designee undertake any part of the Services which are to be performed by the Contractor, to the extent such Services are being performed by the Authority or its designee, the Contractor shall not be entitled to any compensation for the Services so performed. The parties expressly agree that in no case shall payment under this Section 8.03 exceed the maximum sum payable provisions in Section 4.01 and any compensation due the Contractor for any duly authorized Amendments hereto increasing the scope of work hereunder. Notwithstanding anything to the contrary, Contractor shall be paid for all labor and equipment manufactured for the use on this project if verified by the Authority and it is not used for another project or job.

8.04 After receipt of a Notice of Termination and except as otherwise directed by the Authority, the Contractor shall:

- (a) Stop work under this Agreement on the date and to the extent specified in the Notice of Termination;

- (b) Obligate no additional contract funds for payroll costs and other costs beyond such date as the Authority shall specify, and place no further orders or subcontracts for materials, services or facilities, except as may be necessary for completion of such portion of the work under this Agreement as is not terminated;
- (c) Terminate any orders and subcontracts to the extent that they relate to the portion of the work so terminated;
- (d) As of the date the termination is effective, preserve all records and submit to the Authority such records and reports as the Authority shall specify, and furnish to the Authority an inventory of all furnishings, equipment, and other property purchased for the Agreement, (if any), and carry out such directives as the Authority may issue concerning the safeguarding or disposition of files and other property; and
- (e) Submit within thirty (30) days of the Notice of Termination a final report of receipts and expenditures of funds relating to this Agreement, and a list of all creditors, subcontractors, lessors, and/or other parties with which the Contractor has incurred financial obligations pursuant to this Agreement (if any).

8.05 Upon completion or other termination of this Agreement, all finished or unfinished original documents or copies (when originals are unavailable), data, studies, briefs, drawings, maps, models, photographs, files, intermediate materials estimates, memoranda, computations, papers, supplies, recordings, videotapes, notes or other materials (herein collectively called the "Work Product") prepared by the Contractor under this Agreement or in anticipation of this Agreement shall, at the option of the Authority, become its sole and exclusive property, whether or not in the Contractor's possession, free from any claims or retention of rights thereto on the part of the Contractor. The Contractor shall promptly deliver to the Authority upon the Authority's request all of such property and the Authority shall return all the Contractor's properties to it. The Contractor acknowledges that any intentional failure or delay on its part to deliver the Work Product to the Authority will cause irreparable injury to the Authority not adequately compensable in damages and for which the Authority has no adequate remedy at law, and the Contractor accordingly agrees that the Authority may, in such event, seek and obtain injunctive relief in a court of competent jurisdiction and compel delivery of the Work Product. The Authority shall have full and unrestricted use of the Work Product for the purpose of completing the Project. The Contractor may retain copies of the Work Product at its own expense with the consent of the Authority, which consent shall not be unreasonably withheld.

Should the Authority use such Work Product for any purpose except for the Project without utilizing the services of the Contractor, the Contractor shall have no liability arising out of or in connection with such use, or involving or resulting from such use.

ARTICLE IX

Amendments

9.01 The Authority may from time to time consider it in its best interest to change, modify or extend a term, condition or covenant of this Agreement or require changes in the scope of the services to be performed by the Contractor, or require the Contractor to perform additional services. Any such change, addition, deletion, extension or modification, including any increase or decrease in the amount of the Contractor's compensation, which is mutually agreed upon by and between the Authority and the Contractor, shall be incorporated in written amendments (herein called "Amendments") to this Agreement. Such Amendments shall not invalidate this Agreement, nor relieve or release the Contractor and/or Authority from any of its obligations under this Agreement, unless so stated therein. The Contractor shall not be required to perform in accordance with any requested Amendment until Section 9.02 is complied with.

9.02 No Amendment to this Agreement shall be effective and binding upon the parties, unless it expressly makes reference to this Agreement, is in writing and is signed and acknowledged by duly authorized representatives of both parties. No verbal order or instructions shall in any way change or modify this Agreement. No verbal conversation, understanding, or agreement with any officer or employee of the Authority, or any other person, either before or after the execution of the Agreement shall affect or modify any of the terms, conditions or obligations contained herein.

ARTICLE X

Conflict of Interest

10.01 The Contractor warrants and covenants that it does not have and that it will not have during the performance of this Agreement, any direct or indirect proprietary or other interest in any concern, business or entity which would conflict in any manner or degree with the performance of the Services under this Agreement. The Contractor further warrants and covenants that no officer, commissioner, member or employee of the Authority or any other public official who exercises any functions or responsibilities in the review or approval of the undertaking or carrying out of this Agreement has any personal or financial interest, direct or indirect in this Agreement or the proceeds hereof.

ARTICLE XI

Confidential Information

11.01 In order that the Contractor may effectively fulfill its obligations under this Agreement, it may be necessary or desirable for the Authority to disclose confidential and proprietary information to the Contractor pertaining to the Authority's or the City of Detroit's (herein called the "City") past, present and future activities. Since it is difficult to separate confidential and proprietary information from that which is not, the Contractor shall regard all information gained as a result of the Services to be performed hereunder as information which is confidential and proprietary to the Authority or the City and not to be disclosed to any organization without the prior written consent of the Authority or the City.

ARTICLE XII

Indemnity

12.01 The Contractor agrees to indemnify and hold harmless the Authority and the City against and from any and all liabilities, obligations, damages, penalties, claims, costs, charges, losses and expenses (including without limitation, fees and expenses of attorneys, expert witnesses and other consultants) which may be imposed upon, incurred by or asserted against the Authority or the City to the degree of fault of the Contractor and its employees, agents, consultants and sub-consultants caused by any of the following occurring during the term of this Agreement:

- (a) Any negligent or tortious act or omission of the Contractor or any of its personnel, employees, agents, consultants or subcontractors, or any entities associated, affiliated or subsidiary to the Contractor now existing or hereafter created, or their agents and employees.
- (b) Any failure by the Contractor, its personnel, employees agents, consultants or subcontractors to perform its obligations, either implied or expressed, under this Agreement.
- (c) Any act, failure to act or misrepresentation by the Contractor or any of its agents, personnel, employees, consultants or subcontractors in connection with the Project.

The Contractor also agrees to hold the City and the Authority harmless from any and all injury to the person or damage to the property of, or any loss or expense incurred by, an employee of the Authority which arises out of the negligent performance by the Contractor or its employees of the Services under this Agreement to the degree of fault of the Contractor.

12.02 The Contractor agrees that it is its responsibility and not the responsibility of the Authority to safeguard the property and materials that any employees, consultants, or subcontractors use or have in their possession while performing under this Agreement. Further, the Contractor agrees to hold the Authority and the City harmless for any loss of such property and materials to the degree of Contractor's fault used by such persons pursuant to the Contractor's performance under this Agreement or which is in their possession.

12.03 The indemnification obligation under this Article shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor under workers' compensation acts or other employee benefit acts. In addition, the Contractor agrees to hold the Authority and the City harmless to the degree of Contractor's fault from the payment of any deductible on any insurance policy.

12.04 The Contractor agrees that it will require the same indemnification of the Authority by any consultant or subcontractor it hires in providing the Services to be provided in this Agreement.

12.05 Nothing contained in this Article XII shall be construed to require indemnification by the Contractor to a greater degree than that permitted by Act 165 of the Michigan Public Acts of 1966, being MCLA 691.991.

ARTICLE XIII

Insurance

13.01 It is agreed, prior to the execution of this Agreement by the Contractor, that the Contractor shall procure and maintain, and shall provide the Authority with evidence of, the following occurrence-based liability insurances in the following amounts:

- (a) Worker's Compensation insurance which meets Michigan Workers Compensation statutory requirements and Employers Liability insurance with limits of \$500,000 for bodily injury by accident for each accident and \$500,000 for bodily injury by disease for each accident. The Contractor agrees that it will obtain a similar covenant with respect to worker's compensation insurance from any subcontractor retained by the Contractor to render any of the Services. This insurance shall be kept in force and effect until receipt of final payment by the Contractor. This insurance is mandatory if the Contractor has employees.

- (b) Commercial General Liability insurance with the following limits.

Each Occurrence Limit	1,000,000
Personal & Advertising Injury Limit	1,000,000
General Aggregate Limit	2,000,000
Products/Completed Operations Aggregate Limit	2,000,000
Damages to Premises Rented to the Contractor's Limit	100,000
Medical Expenses	10,000

- (c) [INTENTIONALLY OMITTED].

- (d) Automobile liability insurance covering all owned, non-owned, or hired automobiles with limits for bodily injury and property damage of \$1,000,000 each occurrence. Such insurance shall comply with the provisions of the Michigan No Fault Insurance Law. This insurance shall be kept in force and effect until receipt of final payment by the Contractor.

13.02 Contractor agrees to notify the Authority in writing of any material change or cancellation or non-renewal of any of the required policies at least thirty (30) days prior to

such material change, cancellation or non-renewal and failure to do so will constitute material breach of this Agreement.

13.03 [INTENTIONALLY OMITTED].

13.04 Unless prohibited by law, the commercial general liability policy maintained by the Contractor hereunder shall name the Authority and the City as additional insureds, but the Authority's insurance shall be primary and non-contributory to any insurance carried by the Contractor.

13.05 The insurance required of all parties to this Agreement shall be written with insurers authorized to do business in the State of Michigan and shall be rated at least A: IX by A.M. Best's Rating Service.

13.06 Notwithstanding anything to the contrary contained in this Agreement, the Authority and the Contractor hereby waive any and all rights of recovery, claim, action or cause of action against the other, its agents, employees, officers, directors, venturers, partners, members, servants or shareholders for any loss or damage to the other's property by reason of fire, the elements, or any other cause which is covered by standard "all risks" property insurance (including comprehensive boiler and machinery coverage), regardless of cause or origin, including negligence of the other party hereto, its agents, employees, officers, directors, venturers, partners, members, servants or shareholders. Each party's property insurance policies shall contain provisions where the insurer waives their right of subrogation against such other party.

13.07 Certificates of insurance evidencing at least the Minimum Insurance Requirements shall be submitted to the DBA on or before the Effective Date and at least fifteen (15) days prior to the expiration dates of expiring policies. Upon request, the Contractor shall provide the DBA with copies of all required policies.

ARTICLE XIV

Payment and Performance Bonds

14.01 Contractor agrees to deliver to the Authority prior to the Commencement of Services, payment and performance bonds issued by a corporate surety licensed to transact business in Michigan in amounts equal to one hundred percent (100%) of the cost of Services.

ARTICLE XV

Fair Employment Practices

15.01 In accordance with the United States Constitution and all federal legislation and regulations governing fair employment practices and equal employment opportunity, including but not limited to Title VI and VII of the Civil Rights Act of 1964 (P.L. 88-352, 78 STAT. 252), and United States Department of Justice Regulations (28 C.F.R. Part 42) issued pursuant to that Title, and in accordance with the Michigan Constitution and all state laws and regulations governing fair employment practices and equal employment opportunity, including but not limited to the Michigan

Elliot-Larson Civil Rights Act (P.A. 1976 No. 453) and the Michigan Persons with Disabilities Act Civil Rights Act (P.A. 1976 No. 220) the Contractor agrees that it will not discriminate against any person, employee, consultant or applicant for employment with respect to his (her) hire, tenure, terms, conditions or privileges of employment or hire because of his (her) religion, race, national origin, age, sex, height, weight, marital status, or handicap that is unrelated to the individual's ability to perform the duties of a particular job or position. The Contractor recognizes the right of the United States and the State of Michigan to seek judicial enforcement of the foregoing covenants against discrimination against itself or its subcontractors.

15.02 The Contractor is required to adhere to City of Detroit Ordinance No. 20-93, codified as Detroit City Code 18-5-60 through 18-5-69, "Prevailing Wage and Fringe Benefit Rates Required for City Projects," as amended.

15.03 The Contractor shall not discriminate against any employee or applicant for employment, training, education, or apprenticeship connected directly or indirectly with the performance of this Agreement, with respect to his (her) hire, promotion, job assignment, tenure, terms, conditions or privileges of employment because of race, color, creed, national origin, age, marital status, handicap, sex or sexual orientation.

15.04 The Contractor shall promptly furnish any information required by the Authority or the City of Detroit Human Rights Department pursuant to this Section.

15.05 The Contractor further agrees that it will notify any subcontractor of its obligations relative to fair employment practices nondiscrimination and affirmative action under this Agreement when soliciting same and will include the provisions of this Article in such subcontract, as well as provide the Authority a copy of any subcontract agreement upon request. The Contractor further agrees to take such action with respect to any subcontract procurement as the Authority may direct as a means of enforcing such provisions, including the aforementioned sanctions for noncompliance.

15.06 Breach of the terms and conditions of this Article XV may be regarded as a material breach of this Agreement.

ARTICLE XVI

Personnel, Labor and Staffing

16.01 Contractor agrees to have available at all times during the Contract Term the appropriate levels of competent administrative, supervisory and skilled trade personnel required to perform the Services associated with the Project in a timely, efficient and professional manner and in full cooperation with the Authority.

16.02 Contractor acknowledges that the Authority shall have approval rights with respect to certain Key Personnel (as defined herein) assigned to the Project, and that Contractor shall not remove such Key Personnel without the prior written consent of the Authority, which will not be unreasonably withheld. "Key Personnel" means those personnel

identified as key personnel in Contractor's accepted proposal in response to the Authority's request for proposals for this Project.

16.03 Contractor further acknowledges and agrees that the Authority has the right to require the Contractor to remove and replace from the Project any of its direct employees or subcontracted personnel, including skilled trades who, in the reasonable discretion of the Authority, are not performing at the proper skill level or in the best interest of the Authority or are otherwise deemed detrimental to the Authority's service to its customers, patrons, invitees or the public.

ARTICLE XVII

Notices

17.01 All notices, consents, approvals, requests, reports and other communications (herein collectively called "Notices") required or permitted under this Agreement shall be in writing and sent by registered or certified mail, postage prepaid and addressed as follows:

If to Authority:

City of Detroit Building Authority
1301 Third Street, Suite 328
Detroit, Michigan 48226
Attention: Tyrone Clifton

with a copy to:

The Allen Law Group, PC
3011 W. Grand Blvd., Suite 2500
Detroit, Michigan 48202
Attention: Floyd E. Allen, Esq.

If to Contractor:

Attention: _____

17.02 Notices shall be deemed given on the date of mailing. Either party to this Agreement may change its address for the receipt of Notices at any time by giving Notice thereof to

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the other as herein provided. Any Notice given by a party hereunder must be signed by an authorized representative of such party.

ARTICLE XVIII

Representations and Warranties

18.01 Contractor represents and warrants that all of the following statements are true and shall remain true from the Effective Date of this Agreement throughout the Contract Term:

- (a) The Contractor covenants that it is not, and will not become, in arrears to the Authority or the City upon any contract, debt or other obligations.
- (b) The Contractor is fully qualified and capable and has the requisite skills necessary to perform the Services pursuant to the terms and conditions set forth therein.
- (c) Contractor represents and warrants that it has full power to enter into this Agreement, to enter into the obligations described herein, to execute and deliver this as well as any and all other documents to be executed and/or delivered in connection herewith, and to incur the obligations provided for herein, all of which have been duly authorized by all proper and necessary action of the Contractor.
- (d) Contractor represents and warrants that, as of the Effective Date and throughout the Contract Term of this Agreement, Contractor has not been and is not in arrears to the State of Michigan for any debts whatsoever (including, but not limited to, back taxes), nor is or was Contractor in default or in litigation regarding any issues with the State of Michigan, US Federal Government, Wayne County, Oakland County, Macomb County or the City.
- (e) Contractor represents and warrants that it has the necessary financial resources, employees, vehicles and equipment available to provide the Services as required by this Agreement.
- (f) Contractor represents and warrants that it is not, jointly or severally, party to any contract or agreement or subject to any other restriction or unusually burdensome order of any regulatory commission, court, board or agency, which may materially and adversely affect its ability to provide the Services. The execution and performance of this Agreement and the documentation related hereto, will not result in the creation of any other encumbrance or charge upon any asset of Contractor pursuant to the terms of any other agreement. No provisions of any existing mortgage, indenture, contract or agreement affecting Contractor's operations and/or assets is in effect which would conflict with or in any way prevent the execution, delivery or enforcement of the terms of this Agreement.
- (g) To the best of Contractor's knowledge, it has not received any written notice from any governmental authority that the Contractor is now in violation of any governmental orders, regulations, statutes or ordinances dealing with the Contractor's operations. In the event any such notice from any governmental authority is received by Contractor between the

Effective Date and throughout the Contract Term, which Contractor does not reasonably contest, Contractor shall correct the same at Contractor's expense as promptly as possible.

- (h) Contractor has not entered into any contracts or made any commitments which would bind the Authority as a successor in interest.
- (i) Contractor has not entered into any other existing agreements which will conflict with its obligations hereunder.
- (j) To the best of Contractor's knowledge, all documents heretofore and hereafter provided to the Authority are, and shall be complete, true, and accurate in all material respects.
- (k) Contractor has not contracted for the furnishing of labor or materials which will not be paid in full by Contractor in the ordinary course. Contractor shall indemnify the Authority from all loss, claims, and costs which the Authority may incur from the imposition of construction and/or storage/bailment liens, if any, arising from the acts and/or omissions of Contractor.
- (l) Contractor has no notice of, and there is no pending or threatened litigation, administrative action or examination, claim or demand whatsoever relating to the Contractor and/or its operations and/or assets, or the Services contemplated herein, before any court or any federal, state or municipal government department, commission, board, bureau, agency or instrumentality thereof, the outcome of which may materially adversely affect Contractor and/or Contractor's ability to perform the Services in accordance with this Agreement.
- (m) No federal, state or local taxing authority has asserted any tax deficiency, lien, or assessment against the Contractor which has not been paid or the payment for which adequate provision has not been made to the Authority's reasonable satisfaction.
- (n) That Contractor and the principals and/or partners and/or owners and/or officers of Contractor are citizens of the United States of America as defined in Section 1445 of the Internal Revenue Code, being 26 USC §1445.
- (o) This Agreement, and all related documents will, when executed and delivered by Contractor, be the valid, legal and binding agreements or obligations of the Contractor, enforceable in accordance with their respective terms, having been duly authorized by all requisite corporate action.
- (p) Contractor has complied with all City applicable clearance and hiring policy requirements, including execution and delivery of a Request for Income Tax Clearance, Vendor Clearance Request, Covenant of Equal Opportunity, Hiring Policy Compliance Affidavit and Slavery Era Records and Insurance Disclosure Affidavit.
- (q) Contractor hereby warrants, represents and covenants with the Authority that each and every warranty, representation, and covenant set forth in this Agreement shall be true for the period from the Effective Date and throughout the Contract Term of this Agreement.

ARTICLE XIXOffice of the Inspector General

19.01. In accordance with Section 2-106.6 of the City Charter, this Agreement shall be voidable or rescindable at the discretion of the Mayor Inspector General at any time if a Public Servant who is a party to the Contract has an interest in the Contract and fails to disclose such interest.

19.02. This Agreement shall also be voidable or rescindable if a lobbyist or employee of the contracting party offers a prohibited gift, gratuity, honoraria or payment to a Public Servant in relation to the Agreement in accordance with Section 2-106.6 of the City Charter.

19.03. A fine shall be assessed to the Authority in the event of a violation of Section 2-106.6 of the City Charter. If applicable, the actions of the Authority, and its representative lobbyist or employee, shall be referred to the appropriate prosecuting authorities.

19.04. Pursuant to Section 7.5-310 of the City Charter, it shall be the duty of every Public Servant, contractor, subcontractor, and licensee of the City, and every applicant for certification of eligibility for a City contract or program, to cooperate with the Inspector General in any investigation pursuant to Article 7.5, Chapter 3 of the City Charter.

19.05. In accordance with Section 7.5-310 of the City Charter, any Public Servant who willfully and without justification or excuse obstructs an investigation of the Inspector General by withholding documents or testimony, is subject to forfeiture of office, discipline, debarment or any other applicable penalty.

19.06. As set forth in Section 7.5-308 of the City Charter, the Inspector General has a duty to report illegal acts. If the Inspector General has probable cause to believe that any Public Servant or any person doing or seeking to do business with the City has committed or is committing an illegal act, then the Inspector General shall promptly refer the matter to the appropriate prosecuting authorities.

ARTICLE XXMiscellaneous

20.01 (a) No failure by the Authority to insist upon the strict performance of any covenant, agreement, term or condition of this Agreement or to exercise any right, term or remedy resulting from a breach thereof shall constitute a waiver of any such covenant, agreement, term or condition of this Agreement and the same shall continue in full force and effect with respect to any other then existing or subsequent breach thereof.

- (b) Each party reserves and shall have the exclusive right to waive, at its sole discretion, and to the extent permitted by law, any requirement or provision under this Agreement unless such waiver is specifically prohibited. No act by or on behalf of a party hereto shall be, or shall be deemed or construed to be, a waiver of any such requirement or provision, unless the same be in writing, signed by the authorized representative of the party and expressly stated to constitute a waiver.

20.02 If any provision of this Agreement or the application thereof to any person or circumstance shall to any extent be invalid or unenforceable, the remainder of the Agreement, or the application of such provisions to persons or circumstances other than those as to which it is invalid or unenforceable shall not be affected thereby, and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

20.03 This Agreement, including all Exhibits attached hereto, which is a part of this Agreement, contains the entire agreement between the parties and all prior negotiations and agreements are merged herein. Neither the Authority nor the Authority's agents have made any representations except as expressly set forth herein, and no rights or remedies are or shall be acquired by the Contractor by implication or otherwise unless expressly set forth herein. The Contractor hereby waives any defense it may have to the validity of the execution of this Agreement.

20.04 Unless the context otherwise expressly requires, the words "herein," "hereof," and "hereunder" and other words of similar import refer to this Agreement as a whole and not to any particular article or section or other subdivision.

20.05 All the terms and provisions of this Agreement shall be deemed and construed to be "covenants" and "conditions" as though the words specifically expressing or importing covenants and conditions were used in each separate term and provision.

20.06 The headings and sections in this Agreement are for convenience only and shall not be used to construe or interpret the scope of intent of this Agreement or in any way effect the same.

20.07 The rights and remedies set forth herein are not exclusive and are in addition to any of the rights and remedies provided at law or in equity. The Agreement and all actions arising hereunder shall be governed by, subject to and construed according to the laws of the State of Michigan. The Contractor agrees, consents and submits to the personal jurisdiction of any competent court in Wayne County, Michigan for any action arising out of this Agreement. The Contractor agrees that service of process at the address and in the manner specified in Article 14 will be sufficient to put the Contractor on notice, and the Contractor hereby waives any and all claims relative to such notice. The Contractor also agrees that it will not commence any action against the Authority because of any matter whatsoever arising out of or relating to the validity, construction, interpretation and enforcement of this Agreement, in any courts other than those in the County of Wayne, State of Michigan, unless original jurisdiction can be had in the United States District Court, Eastern District, the Michigan Court of Appeals or the State Supreme Court.

20.08 If any affiliate (as hereinafter defined) of the Contractor shall take any action, which, if done by a party, would constitute a breach of this Agreement, the same shall be deemed a breach by the Contractor with right legal effect. "Affiliate" shall mean a "parent," subsidiary or other company controlling, controlled by or in common control with the Contractor.

20.09 It is understood that this is not an exclusive service contract, and that during the term of this Agreement, the Authority may contract with other companies and that the Contractor is free to render the same or similar services to other clients; provided, however, that the Contractor's obligations to the Authority contained in this Agreement will not be affected in any manner.

20.10 Neither party shall be responsible for any loss, damage, detention, or delay caused by labor trouble or disputes, strikes, lockouts, fire, explosion, theft, lightning, wind storm, earthquake, floods, storms, riot, civil commotion, malicious mischief, embargoes, government priorities, or requests or demands of the National Defense Program, civil or military authority, war, insurrection, orders or instructions of any federal, state, or municipal government or any department or agency thereof, acts of God, or by any other cause beyond the reasonable control of either party. Dates for the performance or completion of the work shall be extended by such delay of time as may be reasonably necessary to compensate for the delay.

20.11 For purposes of the hold harmless and indemnity provisions contained in this Agreement, the term "Authority" shall be deemed to include the Detroit Building Authority, the City of Detroit, and all other associated, affiliated, allied or subsidiary entities or commissions, their officers, agents and representatives and employees now existing or hereafter created.

20.12 The Contractor covenants that it is not, and will not become, in arrears to the Authority upon any contract, debt or other obligations to the City, including real property, personal property and income taxes.

20.13 This Agreement may be executed in any number of counterparts and all of said counterparts taken together shall be deemed to constitute one and the same instrument. Promptly after the execution hereof, the Authority shall submit to the Contractor a confirmed copy of this Agreement.

20.14. Contractor covenants and agrees that it will complete the Project in a manner consistent with local, state or federal laws, rules or regulations now or hereafter in force and applicable hereto.

20.15. [INTENTIONALLY OMITTED].

20.16 Contractor acknowledges and agrees that the Authority shall be permitted to audit the Contractor's financial records pertaining to the Contractor's performance of this Agreement, which right to audit may be assigned by the Authority to its designee, including the Detroit City Council and the City Auditor General.

20.17 Contractor and each of its subcontractors shall comply with all anti-kickback laws, including the Copeland Anti-Kickback Act (18 USC §874) and is prohibited from inducing, by any means, any person employed in connection with the Project to give up any part of the compensation to which he/she is otherwise entitled. Contractor shall insert substantially similar language to the language in this Section to ensure compliance by subcontractors with the terms of this Section.

20.18 Contractor and each of its subcontractors are prohibited from paying or accepting any bribe in connection with securing this Agreement or in connection with performing under the terms of this Agreement. Contractor shall insert substantially similar language to the language in this Section to ensure compliance by subcontractors with the terms of this Section.

20.19 Contractor shall comply with all federal, state and local statutes, rules regulations and orders applicable to the conduct of the work under this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

CITY OF DETROIT BUILDING AUTHORITY,
a Michigan public authority and body
corporate

By: _____
Hakim W. Berry

Its: Chairman

By: _____
Christopher T. Jackson

Its: Treasurer

_____, a

By: _____

Its: _____

APPROVED AS TO FORM:

General Counsel, City of Detroit
Building Authority

ATTACHMENT A**PAYMENT PROCEDURES**

The Contractor shall submit a cost breakdown of the work for the purpose of developing a schedule of values, as required by the Authority and/or by the funding source's accounting requirements and as required to further breakdown the unit cost in the proposal. The cost breakdown shall, when totaled, equal the total Contract amount for the work. The developed schedule of values shall be incorporated into the Contractor's invoice and used on a monthly basis to determine the amount earned by the Contractor that month. The cost breakdown must meet with the approval of the Authority and may be revised by the Authority at its sole discretion if it reasonably appears unbalanced. The Authority reserves the sole right, and the Contractor acknowledges such right, to withhold progress payments or portions thereof, in amounts judged necessary by the Authority, should the Contractor become in default of any of the terms and conditions of the Agreement.

Procedure for Monthly Payment Applications

1. Before the 25th day of each month, the Contractor will contact the Authority's Project Manager and provide an estimate of the quantities and values of work completed, as projected to the end of the month, so that a value of work completed and earned can be agreed upon.
2. The Contractor must verify quantities and values approved and submit in triplicate the detailed invoice before the 1st day of each month. For each of the line items in the approved cost breakdown, the Contractor shall indicate total charges through the current billing period, total charges through the previous billing period, total charges for the current billing period, quantities and types of units of work performed and the associated unit prices.
3. The monthly payment request shall be in the form of notarized AIA Documents G702 and G703 ("Application for Payment" and the "Continuation Sheet"), together with a spreadsheet of the schedule of values approved by the Authority.
4. A Partial Unconditional Waiver of Lien shall be submitted by the Contractor and its subcontractors to the Authority prior to the Authority processing Contractor's requests for payment. A final unconditional waiver of lien acknowledging payment in full to the Contractor and each subcontractor shall be submitted to the Authority at the time final payment is made.

5. A notarized Contractor's sworn statement, showing that all labor and materials furnished to the date of request have been paid in full shall accompany each monthly invoice.
6. All invoice documents and backup must be clearly identified with the Project name and shall be hand delivered or mailed to:

Tyrone Clifton, Director
City of Detroit Building Authority
1301 Third Avenue, Suite 328
Detroit, Michigan 48226

7. Requests for payment for extra work items will be accepted only when covered by Change Order (AIA Document G701) to the Agreement and only when submitted in the appropriate format and after written approval by the Authority
8. Payment will not be made for materials stored off of the Project site that have not been inspected and approved by the Authority.
9. Should the Contractor fail to comply with steps (1) through (8), the monthly estimate presented to the Authority may not be honored.
10. No payments shall become due under this Agreement until:
 - a. This Agreement is executed by the Contractor and the Authority.
 - b. Such items as bonds and certificates of insurance are furnished and are satisfactory to the Authority.
 - c. Such time as the Authority receives from its funding source(s) funds for the work performed by Contractor, that is properly invoiced by the Contractor.
11. The Authority will pay the Contractor the value of work approved by the Authority, less the applicable retainage for Contractor's invoices that are approved by the Authority in accordance with these payment procedures.
12. Subject to paragraph 13 of these payment procedures, the Authority shall pay the Contractor final payment upon completion by the Contractor of all punchlist items; submission of as-built drawings and operation and maintenance manuals; receipt of consent of the surety; receipt of warranties and guarantees, and upon remittance of final payment from the Authority's funding source to the Authority. Payments shall be subject to a retainage of ten (10%) percent of each payment until such time that the work is fifty (50%) percent complete, after which a retainage of ten (10%) percent of each payment may be continued if the Authority determines that the Contractor is not making

satisfactory progress towards substantial completion of the work or for any other reason relating to the Contractor's performance under the Agreement.

13. Acceptance of final payment by the Contractor shall constitute and operate as a release of the Authority and the City of Detroit (the "City") from any and all claims by the Contractor of any liability of the Authority or the City for any act or omission relating to or arising under the Agreement, including any prior omission, negligence or default of the Authority, the City, or any of their officers, employees, agents or contractors. Any claim by Contractor relating to or arising from the Agreement and not otherwise waived by Contractor shall be submitted to the Authority prior to final payment in a verified statement of any and all claims relating to or arising under the Agreement, setting forth with respect to each such claim the total amount thereof, the various items of labor and materials included therein and the value of each such item, the claim for any delay, the alleged cause of each such delay, the period or periods of time of such delay, giving the dates when the Contractor claims the performance of the work or any particular part thereof was delayed and an itemized statement and breakdown of the amount claimed for each such delay. Unless Contractor's claims are completely submitted as required herein prior to the Authority's final payment to the Contractor, the Contractor will have waived such claims and the right to assert the claims.

PERFORMANCE BONDCONTRACTOR *(name and address):*SURETY *(name and address of principal place of business):*OWNER *(name and address):*City of Detroit Building Authority
1301 Third Street, Suite 328, Detroit, MI
48226**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description *(name and location):* Detroit Lower East Side Flood Mitigation Project in City of Detroit Building Authority**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☒ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL**SURETY**

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence,

to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims

for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

City of Detroit Building Authority
Detroit Lower East Side Flood Mitigation Project

PAYMENT BOND

CONTRACTOR *(name and address):*SURETY *(name and address of principal place of business):*OWNER *(name and address):*

City of Detroit Building Authority
1301 Third Street, Suite 328, Detroit, MI
48226

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):* Detroit Lower East Side Flood Mitigation Project in City of Detroit Building Authority**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☒ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL**SURETY**_____
(seal)

Contractor's Name and Corporate Seal

(seal)

Surety's Name and Corporate Seal

By: _____

Signature

By: _____

Signature *(attach power of attorney)*_____
Print Name_____
Print Name_____
Title_____
Title

Attest: _____

Signature

Attest: _____

Signature

Title_____
Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. **Definitions**
 - 16.1 **Claim:** A written statement by the Claimant including at a minimum:
 1. The name of the Claimant;
 2. The name of the person for whom the labor was done, or materials or equipment furnished;
 3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 4. A brief description of the labor, materials, or equipment furnished;
 5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
 - 16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
18. Modifications to this Bond are as follows:

City of Detroit Building Authority
Detroit Lower East Side Flood Mitigation Project

MAINTENANCE BOND

CONTRACTOR *(name and address):*SURETY *(name and address of principal place of business):*OWNER *(name and address):*

City of Detroit Building Authority
1301 Third Street, Suite 328, Detroit, MI
48226

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*: Detroit Lower East Side Flood Mitigation Project in City of Detroit Building Authority**BOND**

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: None

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Maintenance & Guarantee Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL**SURETY**

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that by and under said contract, the above named principal has agreed with the said Owner that for a period of two years from the date of payment of Final Estimate, to keep in good order and repair any defect in all the work done under said contract either by the principal or his subcontractors, or his material suppliers, that may develop during said period due to improper materials, defective equipment, workmanship or arrangements, and any other work affected in making good such imperfections, shall also be made good all without expense to the Owner, excepting only such part or parts of said work as may have been disturbed without the consent or approval of the principal after the final acceptance of the work, and that whenever directed so to do by the Owner, by notice serving in writing, either personally or by mail, on the principal at _____

_____ OR _____ its
 _____ legal
 representatives, or successors, or on the surety at _____

WILL PROCEED at once to make such repairs as directed by said Owner; and in case of failure to do so within one week from the date of such notice, or within reasonable time not less than one week, as shall be fixed in said notice, then the said Owner shall have the right to purchase such materials and employ such labor and equipment as may be necessary for the purpose, and to undertake, do and make such repairs, and charge the expense thereof to, and receive same from said principal or surety. If any repair is necessary to be made at once to protect life and property, then and in that case, the said Owner may take immediate steps to repair or barricade such defects without notice to the contractor. In such accounting the said Owner shall not be held to obtain the lowest figures for the doing of the work, or any part thereof, but all sums actually paid therefore shall be charged to the principal or surety. In this connection the judgment of said year from the date of payment of Final Estimate, shall keep said work so constructed under said contract in good order and repair, excepting only such part or parts of said work so constructed under said contract in good order and repair, excepting only such part or parts of said work which may have been disturbed without the consent or approval of said principal after the final acceptance of the same, proceed to make repair as in said notice directed, or shall reimburse said Owner for any expense incurred by making such repairs, should the principal or surety fail to do so as hereinbefore specified, and shall fully indemnify, defend and save harmless the said Owner from all suits and actions for party or parties, by or from any of the acts or omissions or through the negligence of said principal, servants, agents, or employees, in the prosecution of the work included in said contract, and from any and all claims arising under Workman's Compensation Act, so-called, of the State of Michigan, then the above obligation shall be void, otherwise to remain in full force and effect.

FOR INFORMATION ONLY – Name, Address and Telephone

Surety Agency or Broker

Owner's Representative (engineer or other party): Giffels Webster

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY**1.01 Defined Terms**

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and

equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:*
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:*
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).
- E. *Furnish, Install, Perform, Provide:*
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 - 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or

interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
- 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in

question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE**6.01 Performance, Payment, and Other Bonds**

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 Insurance—General Provisions

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 Contractor's Insurance

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 Owner's Liability Insurance

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 Property Insurance

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 Waiver of Rights

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 Receipt and Application of Property Insurance Proceeds

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
- d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 Taxes

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 Laws and Regulations

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 Record Documents

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 Safety and Protection

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

- A. 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 the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 Coordination

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 Legal Relationships

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION**10.01** *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with

Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

- B. *Cash Allowances*: Contractor agrees that:
1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**14.01 Access to Work**

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

- C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY*SC-1.01 Defined Terms*

SC-1.01 Add the following language at the end of Paragraph 1.01.A.40:

Work is considered “substantially complete” when all seawalls and earth berm have been constructed, all required tests have passed, and all affected pavement has been replaced. Work has reached final completion when all final restoration work has been completed.

ARTICLE 2 – PRELIMINARY MATTERS*SC-2.02 Copies of Documents*

SC-2.02.A. Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner, via the Engineer, shall furnish to Contractor four hard copies of the Contract Documents, each containing the Agreement for Contractor execution. Owner shall then execute each Agreement and one physical executed Project Manual shall be furnished to the Contractor, one to the Engineer, and two to the Owner. One copy in electronic portable document format (PDF) may also be provided if requested.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK*SC-4.01 Commencement of Contract Times; Notice to Proceed*

SC-4.01.A. Amend 4.01.A. to read as follows:

The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 120th day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS*SC-5.03 Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.B:

- C. The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner:
 - 1. Report dated September 15, 2023, was prepared by SME, entitled: “Geotechnical Engineering Report – City of Detroit Flood Mitigation Lower East Side”, consisting of 108 pages. The Technical Data contained in such report upon whose accuracy Contractor may rely are those indicated in the definition of Technical Data in the General Conditions.

5.06 Hazardous Environmental Conditions

SC-5.06 Delete Paragraphs 5.06.A, 5.06.B, and 5.06I in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- I. Not Used.

ARTICLE 6 – BONDS AND INSURANCE*SC-6.01 Performance, Payment, and Other Bonds*

SC-6.01 Add the following new paragraphs immediately after Paragraph 6.01.F

- G. Contractor shall provide a Maintenance Bond payable to the Owner in an amount equal to 50 percent of the Final Contract Price for a period of two years.
- H. Contractor shall provide a Performance Bond and a Payment Bond on forms provided and in accordance with Article 6.01 of the General Conditions.

SC-6.02 Insurance—General Provisions

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

- 1. In order to determine financial strength and reputation of insurance carriers, all companies providing the coverage required shall be licensed or approved by the Insurance Bureau of the State of Michigan and shall have a financial rating not lower than XI and a policy holder’s service rating no lower than A- as listed in A.M. Best’s Key Rating Guide, current edition. Companies with ratings lower than A-:XI will be acceptable only upon written consent of the Owner.

SC-6.03 Contractor’s Liability Insurance

SC-6.03 Add the following new paragraphs immediately after Paragraph 6.03.J:

- K. Prior to commencement of the work, the Contractor is required to purchase and maintain during the term of the project the following insurance as will protect it and the Owner(s) from claims arising out of the work described in this Contract and performed by the Contractor, Subcontractor(s), or Sub-subcontractor(s):
 - 1. Workers’ Compensation Insurance

- a. Insurance shall be purchased by Contractor and shall include Statutory Workers' Compensation coverages as required by the State of Michigan and any other state(s) in which the Contractor performs work or any other state(s) in which Contractor is domiciled. In addition to statutory coverage, policy shall include Employer's Liability coverage for the limits declared below; disability benefit laws, if any; or Federal compensation acts such as U.S. Longshoremen or Harbor Worker's, Maritime Employment, or Railroad Compensation Act(s), if applicable. Self-insurance plans approved by the regulatory authorities in the state in which work on this project is performed are acceptable.
2. Comprehensive General Liability
 - a. Policy shall be purchased by Contractor and shall cover bodily injury to persons other than employees and for damage to tangible property, including loss of use thereof, including the following exposure:
 - 1) All premises and operations.
 - 2) Explosion, collapse, and underground damage.
 - 3) Contractor's Protective coverage for independent contractors or subcontractors employed by him.
 - 4) Contractual Liability for obligations assumed in the Indemnification-Hold Harmless agreement found in Section 7.18 for the General Conditions of this Contract.
 - 5) The usual Personal Injury Liability endorsement with no exclusions pertaining to employment.
 - 6) Products and Completed Operations.
3. Comprehensive Automobile Liability
 - a. Policy shall be purchased by the Contractor and shall cover bodily injury and property damage arising out of the ownership, maintenance, or use of any motor vehicle, including owned, non-owned and hired vehicles. In light of standard policy provisions concerning (a) loading and unloading and (b) definitions pertaining to motor vehicles licensed for road use vs. unlicensed or self-propelled construction equipment, it is strongly recommended that the Comprehensive General Liability and the Comprehensive Auto Liability be written by the same insurance carrier, though not necessarily in one policy.
4. Owner's Protective Liability
 - a. Policy shall be purchased for the Owner to protect the Owner, the Engineer, their consultants, agents, employees, and such public corporations in whose jurisdiction the work is located for their contingent liability for work performed by the Contractor, the Subcontractor(s) or the Sub-subcontractor(s) under this Contract.
5. Additional Insured Requirements
 - a. The Owner or its representative may, for certain projects, require limits higher than those stated. The Contractor is granted the option of arranging coverage under a single policy for the full limit required or by

a combination of underlying policies with the balance provided by an Excess or Umbrella Liability policy equal to the total limit(s) requested. Umbrella or Excess policy wording shall be at least as broad as the primary or underlying policy(ies) and shall apply both to the contractor's general liability and to his automobile liability insurance.

- b. Insurance required for the Contractor shall include the following as additional insured:
 - 1) Detroit Building Authority and the City of Detroit and individual members thereof, agents and/or authorized representatives for the City.
 - 2) Giffels-Webster Engineers, Inc., 28 West Adams Suite 1200, Detroit, MI., 48226, and their consultants, agents, employees, and/or authorized representatives.
- 6. Contractor's Pollution Liability Insurance
 - a. If required below, Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than 3 years after final completion.
- 7. Contractor's Professional Liability Insurance
 - a. If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- 8. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.
- L. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

Coverage A – Workers' Compensation	\$ <u>Statutory</u>
Coverage B – Employer's Liability	
- Each Accident	\$ <u>500,000</u>
- Disease – Policy Limit	\$ <u>500,000</u>
- Disease – Each Employee	\$ <u>500,000</u>

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

Products - Completed Operations Aggregate Limit	\$ <u>2,000,000</u>
General Aggregate Limit	\$ <u>2,000,000</u>
Each Occurrence Limit	\$ <u>2,000,000</u>
Personal and Advertising Injury	\$ <u>1,000,000</u>
Fire Damage Legal	\$ <u>100,000</u>
Medical Payments	\$ <u>10,000</u>

Afforded General Aggregate Limits shall be secured per project and shall be reflected on successful Bidder's Certificate of Liability Insurance.

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Combined Single Limit	\$ <u>2,000,000</u>
OR	
Bodily Injury	
- Each Person	\$ <u>500,000</u>
Bodily Injury	
- Each Accident	\$ <u>1,000,000</u>
Property Damage	
- Each Accident	\$ <u>500,000</u>

Afforded Automobile Liability coverage shall be secured for "Any Auto" on successful Bidder's Certificate of Liability Insurance.

4. Owner's Protective Liability:

Products - Completed Operations Aggregate Limit	\$ <u>2,000,000</u>
General Aggregate Limit	\$ <u>2,000,000</u>
Each Occurrence Limit	\$ <u>1,000,000</u>
Personal and Advertising Injury	\$ <u>1,000,000</u>
Fire Damage Legal	\$ <u>100,000</u>
Medical Payments	\$ <u>10,000</u>

5. Excess or Umbrella Liability:

Products - Completed Operations Aggregate Limit	\$ <u>5,000,000</u>
General Aggregate Limit	\$ <u>3,000,000</u>
Each Occurrence Limit	\$ <u>3,000,000</u>

All underlying liability policies (General Liability, Automobile Liability, and Employer's Liability) must be included and acknowledged as underlying policies covered by Excess or Umbrella Liability.

6. Contractor's Pollution Liability:

Each Occurrence	\$ <u>Not applicable</u>
General Aggregate	\$ <u>Not applicable</u>



If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

7. Contractor's Professional Liability:

Each Claim	\$ <u>Not applicable</u>
Annual Aggregate	\$ <u>Not applicable</u>

M. Other Insurance Requirements include the following:

1. *Notice of Cancellation of Intent not to Renew:* Policies will be endorsed to provide that at least 30 days written notice shall be given to the Owner and to the Engineer of cancellation or of intent not to renew.
2. *Evidence of Coverage:* Prior to commencement of the Work, the Contractor shall furnish to the Owner four (4) Certificates of Insurance. The Owner reserves the right to request complete copies of policies it deemed necessary

to ascertain details of coverage not provided by the certificates. Such policy copies shall be "Originally Signed Copies" and so designated.

3. *Waivers of Subrogate:* Contractor shall secure Waivers of Subrogation in favor of the City of Detroit under the Contractor's General Liability and Workers' Compensation Coverages.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.02 *Labor; Working Hours*

SC-7.02.B. Amend the first and second sentences of Paragraph 7.02.B to state the following: "...all Work at the Site shall be performed during regular working hours (7am – 7pm), Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday without written authorization from Owner."

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.02 *Coordination*

SC-8.02 Delete Paragraph 8.02.A in its entirety and replace with the following:

- A. Owner intends to contract with others for the performance of other work at or adjacent to the Site.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 *Project Representative*

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

- B. The Resident Project Representative (RPR) refers to Giffels Webster's inspector(s) and/or construction administrator(s) for the project. They will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.
 1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
 2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
 3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
 4. Liaison:
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing

information regarding the provisions and intent of the Contract Documents.

- b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
6. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
8. Review of Work and Rejection of Defective Work:
 - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
9. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

10. Records:

- a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
- b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
- c. Maintain records for use in preparing Project documentation.

11. Reports:

- a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
- b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
- c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

- a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
- b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

- c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.
- C. The RPR shall not:
1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including “or-equal” items).
 2. Exceed limitations of Engineer’s authority as set forth in the Contract Documents.
 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor’s work.
 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
 8. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.06 Change Proposals

SC-11.06.A.3 Delete Paragraph 11.06.A.3 in its entirety and insert the following in its place:

- A. Engineer’s written action under Paragraph 11.06.A.2 will be final and binding upon Owner and Contractor but does not preclude Owner and/or Contractor from any rights and remedies available under Michigan Law.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01 Cost of the Work

SC 13.01.B.5.c Delete Paragraph 13.01.B.5.c in its entirety and insert the following in its place:

- c. Construction Equipment and Machinery:
 - 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- 2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment according to the applicable Blue Book Category of the most current version of the Blue Book Network. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than \$1,000 will be considered small tools.

SC-13.03 Unit Price Work

SC-13.03.E Delete Paragraph 13.03.E in its entirety and insert the following in its place:

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
 1. if the extended price of a particular item of Unit Price Work amounts to 25 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
 2. if there is no corresponding adjustment with respect to any other item of Work; and
 3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Request for Change Order, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01 Review of Applications

SC-15.01.D.1 Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:

1. Within 30 days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

SECTION 01 00 00
GENERAL REQUIREMENTS

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01 10 00 SUMMARY

- A. The purpose of Section 01 00 00 General Requirements is to establish detailed requirements under which the Owner shall judge the Contractor's performance and accept or reject completed portions of any or all of the Work. They apply to types of work generally relevant to all types of projects and are not intended to instruct the Contractor in the means and methods of completing the Work.
- B. General Requirements shall not be confused with the purpose of Section 00 72 00 General Conditions which is to establish basic rights, responsibilities, and relationships of the parties to the Contract.
- C. Under each item of Work listed on the Bid Form and herein described, the Contractor shall furnish all labor and materials; tools, plant, equipment, supplies, and bonds; costs of heating, lighting, and power; tests of construction materials as required under any section of these Specifications; and all Work that may be specifically described and included in the following Divisions (under the respective items, whether included in part of a pay item or otherwise specified) necessary to complete the Work in accordance with the obvious or expressed intent of the Contract.
- D. Should the Contractor fail to comply with these General Requirements, or be dilatory in carrying out specific instructions of the Engineer, those having authority may, with or without notice to the Contractor, take such remedial measures deemed necessary and charge the Contractor with any costs incurred therefor. Any such action, however, shall in no way serve to release the Contractor from its general or particular liability for the safety of the traveling public or the protection of property.
- E. Order of Precedence
 - 1. The specifications in this book shall be taken in the following order of preference. The number one specification supersedes all specifications below if there is a conflict between the specifications.
 - a. General Conditions
 - b. Special Specifications and Provisions
 - c. 2020 Michigan Department of Transportation Standard Specifications for Construction
 - 2. This order shall hold throughout these specifications and shall be considered as part of the Contract Documents.
- F. Work Sequence
 - 1. The Contractor shall submit for approval a construction sequence, detailed Drawings, and written explanations of all temporary facilities and appurtenances intended to be used in maintaining the uninterrupted operations of the existing facilities.
 - 2. In general, Contractor shall have control over the sequence/order of execution of the several parts of the Work to be done under the Contract and over the method of accomplishing the required results, except as some particular sequence or method may be distinctly demanded by the Contract Documents. Engineer may, however, make such reasonable requirements as may, in Engineer's judgment, be necessary for the proper and effective protection of Work partially or wholly completed, and to those requirements Contractor shall conform.

01 11 00 SUMMARY OF WORK

- A. The Project consists of the removal of approximately 150 feet of existing sea wall and 680 feet of existing fence and the construction of approximately 520 feet of new seawall and grading to create berms for flood mitigation, among other associated items of work around Detroit's lower east side. Work also includes approximately 140 feet of seawall

replacement and other isolated repair areas at AB Ford Park and Lakewood Riverfront Park.

01 12 00 MULTIPLE CONTRACT SUMMARY

- A. Contractor shall cooperate fully with separate contractors in nearby areas so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract.
- B. List of other Contracts:
 - 1. NOT USED

01 13 00 RESERVED FOR FUTURE**01 14 00 WORK RESTRICTIONS**

- A. In accordance with the Owner's ordinance, Contractor may only perform Work under this Contract during normal hours and weekdays unless specifically authorized by the Engineer and by written approval of the Owner. See Section 00 73 00 Supplementary Conditions.
- B. At the beginning of Work on this Contract, Contractor shall notify the Engineer in writing of the days and hours that will constitute a normal workweek. Whenever the Contractor intends to depart from the specified workweek, it must notify the Engineer at least 24 hours in advance in writing of the change so that the Engineer may make the necessary arrangements to have required inspectors assigned to the Work. Failure to give such advance notice may cause the Engineer to require removal or uncovering of the Work performed without the Engineer's knowledge.
- C. If an emergency arises that would require Work to be performed outside of the normal working hours of the specified workweek, to save or protect life or property, the requirements of the 24-hour notification shall be waived. Contractor shall notify the Engineer as soon as an emergency exists that necessitates a change in or extension of the normal hours of Work. However, the determination of the existence of an emergency is subject to review and revision by the Engineer.
- D. The normal workweek schedule and/or daily hours of Work will be altered at the Engineer's direction, when, in its judgment, such alteration is necessary to maintain the required progress of the Work.

01 14 13 ACCESS TO SITE

- A. In its operations, the Contractor shall interfere as little as possible with traffic and, in all cases, shall confine its operations to the minimum space possible.
- B. Stockpiling of construction material and equipment will be permitted as necessary, but in no case shall traveled ways, driveways, or entrances be obstructed without the approval of the Engineer.

01 14 16 COORDINATION WITH OCCUPANTS

- A. As required by the Engineer, Contractor, at its own cost, shall provide written notification to all affected residents and businesses of pending Work on their utilities by delivering said notice to an occupant at each location if home, or by leaving the notice if no one is there at the time of visit.
 - 1. Notification of the start of Work must be given at least 24 hours prior to the start of Work for each service line and shall include the date(s) and proposed timing of Work.
 - 2. Should the proposed schedule be altered, a new notice shall be delivered showing the corrected dates.
 - 3. Notice shall request the homeowner / business to fill all floor drains with water to alleviate any "odor" from entering the building as well as any other corrective actions.

4. Contractor shall provide the Engineer with a copy of notices provided to residences/businesses.
 5. Engineer shall not allow any Work until proof of residential notice has been provided.
 6. Prior to any Work commencing, the Owner shall review the prepared notice and has the right to request changes be made within the notice.
- B. Contractor is responsible to maintain access to businesses at all times, or as needed, based on resident/business owner discussions.
- C. Access to rear-yard easements, if any, may be accomplished via an alley, residential street, or private property. In no instance shall the Contractor be permitted to access private property with any construction vehicles or heavy equipment. Contractor shall provide the Engineer with its procedure for accessing easements through private property.
- D. Complaints
1. The Engineer will investigate all complaints received from property owners regarding the Work done by the Contractor and shall also have the right to make investigations on its own initiative. If, in the opinion of the Engineer, the Work has not been done in accordance with this Contract, it shall immediately notify the Contractor, informing it of the nature of the complaint so that it may be remedied.
 2. Should the Contractor fail to remedy the complaint within the time allotted, the Engineer may do so with the Owner's forces and deduct any cost thereof from the amount due the Contractor at the time of Application for Payment.
 3. Alternatively, the Engineer may notify the Contractor to stop all other Work under this Contract until the complaint has been remedied. The Owner shall not be required to pay for any Work done by the Contractor in violation of any such stop order, and the amount due for any such Work shall be regarded as liquidated damages due to the Owner because of such breach of this Contract.

01 14 19 USE OF SITE

- A. Contractor shall limit use of the premises to construction activities in areas permitted by Law, Ordinances, Permits, and the Contract Documents, allow for Owner occupancy and use by the public, and confine operations to areas within Contract limits indicated. Sections of the Site beyond areas in which construction operations are indicated are not to be disturbed.
- B. Easements, Public Rights-of-Way, and Permits
1. The necessary rights-of-way and easements for construction across or under private properties have been or will be obtained by the Owner. In carrying out the Work within private rights-of-way and easements, the Contractor shall take due and proper precautions against any injury to adjacent properties and structures and shall comply with the conditions outlined in the easement and/or right-of-way agreements.
 2. Additional Easements
 - a. Permanent and temporary easements have been obtained for the work areas indicated on the Contract Drawings and are further listed below.
 - 1) None
 - b. Permanent and temporary easements have not been obtained for the work areas indicated on the Contract Drawings and are further listed below.
 - 1) None

3. All Work within railroad rights-of-way shall be conducted in accordance with the requirements of the railroad company having jurisdiction over the right-of-way.
4. Contractor shall obtain permits to construct within public rights-of-way, and the Contractor shall also furnish any bonds and insurance which may be required per regulatory requirements.
5. Contractor shall pay for same at its own expense as well as for any inspection fees that may be required in connection with such permits, and in addition to all other requirements of these Contract documents, shall conduct its entire operation in accordance with provisions of such permits.
6. Should Contractor fail to furnish the Owner with proof of payment within 20 days after receipt of billing for the above-mentioned charges, the Owner will assume that the charges are equitable and unpaid, and the Owner will pay such bills, deducting that sum from any money due or to become due to the Contractor under the terms of this Contract.

01 15 00 RESERVED FOR FUTURE**01 16 00 RESERVED FOR FUTURE****01 17 00 RESERVED FOR FUTURE****01 18 00 PROJECT UTILITY SOURCES**

- A. All Work in connection with public and/or private utilities required in the execution of the Contract shall be the responsibility of the Contractor. The Contractor shall plan and conduct the construction operations to avoid disturbing the existing facilities, piping, equipment, and services in any manner that will interrupt or impair operations, except as approved by the Engineer.
 1. Public utilities shall include but shall not necessarily be limited to: storm drainage facilities, sewerage systems, water systems (supply, transmission and/or distribution), and other utilities under the jurisdiction of a governmental unit.
 2. Private Utilities shall include but shall not necessarily be limited to all utilities under the jurisdiction of the Michigan Public Service Commission.
- B. The location of existing public and/or private utilities shown on the plans is in accordance with the best information available. No guarantee is given that the locations are absolutely accurate or that utilities other than those shown are not present. The Contractor shall, in any event, protect or have relocated, all utilities that might interfere with construction.
- C. In the event existing utilities are encountered along the line of the Work, the Contractor shall perform its operations in such a manner that utility services will not be interrupted and shall, at its own expense, make all temporary provisions to maintain such utility service.
- D. Any Work on public utilities, such as removal and replacement thereof (including chlorination and pressure testing of water mains) shall be done only with the agency or department in charge of the utility being fully informed 48 hours in advance of the Work and having an inspector on the site during the Work. Opening and/or closing of gate valves shall be performed by the local water department.
- E. All utility poles and overhead lines may not be shown or identified on the Drawings. The Contractor shall make its own determination of existing utility poles and facilities attached thereto and overhead lines. Where overhead utilities are encountered in the Work, Contractor shall arrange with the utility Owner for the necessary relocation or protection of its facilities. Protection, removal and replacement, tunneling, or supporting of existing utility poles and protection and removal and replacement of utilities which are installed on the poles, shall be provided either by the Contractor or

by the utility Owner at the Contractor's expense, all in accordance with requirements of the utility Owner.

- F. Whenever, in the opinion of the Engineer, utilities need not be removed or relocated but can be maintained or secured without interfering with the proper execution of the Work, such maintenance shall be performed by the Contractor or shall be arranged for by the Contractor with the utilities concerned. The Work shall be accomplished at the Contractor's expense in such a manner as to secure the safety of the utility involved and the Work under construction.
- G. If the Contractor neglects to restore or repair damaged or injured public or private utilities or structures, the Owner may, upon recommendation by the Engineer and upon 48 hours written notice to the Contractor, proceed to restore or make good such damage or injury and deduct the cost thereof from any monies that are, or may become, due to the Contractor for the Work under this Contract.
- H. All costs in connection with the above Work, including inspection by the municipality and/or other authority (public or private) having jurisdiction, shall be considered as incidental to the Contract price except as otherwise provided herein.
- I. Utility Protection
 - 1. The Contractor shall submit notice of the date and time when it intends to begin Work in an area, 72 hours (three working days) in advance of construction, to the owner(s) of those private utilities located in the area of the proposed construction. The Contractor shall also, at such time, request that the actual location of existing private utilities be confirmed by the owner(s) thereof.
 - 2. Determining the existence and location of underground and overhead utilities and their protection shall be the responsibility of the Contractor. The Contractor shall call MISS DIG with 72 hours' notice and notify representatives of other utilities located in the vicinity of the Work.
 - 3. Where it is the policy of any utility owner to make its own repairs to damaged conduit or other structures, the Contractor shall fully cooperate with the utility owner and shall see that its operations interfere as little as possible with those operations.

01 19 00 RESERVED FOR FUTURE

END OF SECTION

01 20 00 PRICE AND PAYMENT PROCEDURES

- A. The purpose of Section 01 20 00 is to provide administrative and procedural requirements for cash and quantity allowances, unit price measurement and payment, alternate Bids or Proposals, value analysis, consideration of requests for substitution during the construction stage, modifications to the Contract Documents, and processing payments.
- B. All labor, material, equipment, power, software, hardware, and maintenance needed to complete the Project Scope is incidental to the Work, including all Work identified on the Drawings, but not included as a specific Contract pay item, except for Work that would be considered additional Work due to unforeseen conditions.
- C. For Work without a specific pay item, all Work described in the full General Requirements are included in the Cost of the Work. This Work includes, but is not limited to the following:
 - 1. All necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, profit, and everything necessary for each item to function as intended
 - 2. Implementation and maintenance of traffic control, soil erosion, and sedimentation control devices
 - 3. Restoration such as site cleanup; surface restoration; ditch and/or swale restoration; and road, shoulder, curb & gutter, sidewalk, parking lot, paved spillways, and driveway restoration
 - 4. Erection of temporary work signage
 - 5. Fence removal and replacement
 - 6. Mailbox removal and replacement
 - 7. Irrigation system removal, replacement, repair, and testing
 - 8. Final grading, seeding, and cleanup
 - 9. Coordination of mail delivery and refuse removal with residents, post office, and refuse collectors
 - 10. Temporary 21AA Maintenance Aggregate installation, maintenance, and removal
 - 11. Support of utility poles and existing underground utilities during excavation as needed for utility access
 - 12. Dewatering facilities for removal and disposal of water from drains, sewers, trenches, or other excavations which may interfere with execution of Work.
 - 13. Removal, salvage, and replacement of damaged street signs
 - 14. Removal of trees smaller than 6 inches in diameter
 - 15. Removal and replace damaged shrubs, bushes, trees, and other landscaping not designated for removal
 - 16. Protection of existing landscaping
 - 17. Proper ventilation of underground utilities and structures required for access
 - 18. Removal of surplus material encountered during operations constituting a disposal surplus during or at the end of the Work period

01 21 00 ALLOWANCES

- A. See Section 00 72 00 General Conditions for conditions related to allowance requirements.
- B. Costs included in Allowances:

1. Non-refundable fees associated with obtaining permits from permitting agencies.
- C. Costs Not Included in Allowance:
 1. Contractor's labor service required to arrange for and obtain utility service and permits.
 2. Costs for bonds and insurance required by permitting agencies for permits.
 3. Monies deposited with permitting agencies which is not refunded due to Contractor's neglect or improper operations.
- D. Funds from the cash allowance shall be disbursed only after the Engineer has received written documentation of costs.
- E. Contractor is responsible for obtaining all necessary permits, submitting those costs to the Engineer as required, and arranging for the installation of primary electrical and telephone service.
- F. Any additional Bid item allowances are defined below.

01 22 00 UNIT PRICES**01 22 13 UNIT PRICE MEASUREMENT**

- A. Due and proper measurements shall be taken by the Engineer during the progress of the Work, or any part thereof, either before or after commencement of construction. These measurements shall not warrant any claim for damages for anticipated profits on the Work to be dispensed with. If such measurements increase or decrease the amount of Work to be done, such increase or decrease shall be paid for according to actual quantity done at the price stipulated for such Work on the Bid Form.
- B. Lump Sum Prices
 1. In cases where all required items on the Bid Form are Lump Sum, Contractor shall, within 10 days of receipt of the Notice to Proceed, submit a complete breakdown of the Contract Amount.
 2. The breakdown shall show the value assigned to each part of the Work, including an allowance for profit and overhead.
 3. The breakdown will not be considered as fixing a basis for additions to or deductions from the Contract Amount.
- C. Unit Prices
 1. In cases where unit prices form the basis for payment under the Contract, the summation of amounts determined by multiplying the total number of each of the completed units of Work by the unit price stated in the Bid Form for that item shall be used as the basis for payment requests. The quantities contained in the Bid Form are approximate only. Final payment will be made for the actual number of units that are incorporated into or made necessary by the Work covered in the Contract.
 2. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, profit, and everything necessary for each item to function as intended.
 3. Owner reserves the right to reject the Contractor's measurement of Work in place that involves use of established unit prices and to have this Work measured. Furthermore, the Owner reserves the right to increase, decrease, or eliminate any quantities for items listed in the Contractor's Bid or which become part of the Contract Documents.

01 22 16 UNIT PRICE PAYMENT

- A. Mobilization (5% Max)

1. Item(s) shall be completed in accordance with Section 01 71 13 Mobilization.
 2. 50% payment shall be made after 5% of the original Contract amount is earned.
 3. Final 50% payment shall be made after 25% of the original Contract amount is earned.
 4. Shall not exceed 5% of the gross Proposal amount for the Contract.
- B. Traffic Control
1. Item(s) shall be completed in accordance with Section 01 55 26 Traffic Control
 2. 50% payment shall be made following installation of all traffic control devices.
 3. Final 50% payment shall be made following removal of traffic control devices.
- C. Cash Allowance (Permits)
1. Item(s) shall be completed in accordance with Section 00 31 46 Permits and 01 21 00 Allowances.
 2. Measured and paid in accordance with the fees for each applicable agency as listed with Section 00 31 46 Permits. Fees shall not exceed the allowance amount.
 3. Contractor shall submit backup documentation for each permit to be reimbursed.
 4. Contractor shall be reimbursed for the fee and any deposit used by the agency. Contractor is required to submit project approval by each agency and documentation of amount of deposit returned, if any, for final payment.
- D. Existing Sea Wall, to be Removed
1. Item(s) shall be completed in accordance with Section 32 05 05 Selective Demolition for Exterior Improvements and the 2020 MDOT Standard Specifications.
 2. Payment shall be made only for the quantity (LF) of seawall removed. Any damage to existing seawall by the Contractor that is not required will not be paid.
 3. Work includes, but not limited to, removal of existing seawall and appurtenances.
- E. Existing Fence, to be Removed
1. Item(s) shall be completed in accordance with Section 32 05 05 Selective Demolition for Exterior Improvements and the 2020 MDOT Standard Specifications.
 2. Payment shall be made only for the quantity (LF) of fence removed. Any damage to existing fence by the Contractor that is not required will not be paid.
 3. Work includes, but not limited to, removal of existing fence and appurtenances and coordination with property owner to determine if temporary fencing is needed or for permanent fencing installation timing.
- F. Existing Fence Post, to be Removed
1. Item(s) shall be completed in accordance with Section 32 05 05 Selective Demolition for Exterior Improvements and the 2020 MDOT Standard Specifications.
 2. Payment shall be made only for the quantity (EA) of fence posts removed. Any damage to existing fence by the Contractor that is not required will not be paid.
- G. Sawcut and Remove Existing Pavement

1. Item(s) shall be completed in accordance with Section 32 05 05 Selective Demolition for Exterior Improvements and the 2020 MDOT Standard Specifications.
 2. Payment shall be made only for the actual quantity (SY) of pavement removed and performed as shown on the Drawings.
 3. Quantity as shown on the Drawings is estimated based on Engineer judgement for amount of pavement to be removed. Contractor to work with field inspector/Engineer for final quantities based on trench width and quality of existing pavement.
 4. Contractor to remove to closest joint and/or sound pavement.
 5. Work includes, but is not limited to, removing and disposing of concrete or HMA materials, including saw cutting and/or trimming existing surface.
- H. Exist. Boulders Remove, Salvage and Reinstall
1. Item(s) to be removed, salvaged, and reinstalled at the existing location at the completion of construction.
 2. Payment shall be made only for the actual quantity (EA) completed.
 3. Boulders are used as perimeter marks and intended to go back where they are after construction.
- I. Clearing, Trees, Brush as Needed to Grade Berm
1. Item(s) shall be completed in accordance with the 2020 MDOT Standard Specifications section 201.03 A.
 2. Payment shall be made following completion of clearing of the earth berm construction area.
 3. Payment shall be made only for the quantity (AC) of area cleared as shown on the approved construction plans.
 4. Item includes clearing and removal of all trees, stumps, bushes, etc.
- J. Erosion Control Silt Fence
1. Item(s) shall be completed in accordance with Section 01 57 13 Temporary Erosion and Sediment Control, Drawings, and County specifications.
 2. Payment shall be made only for the actual quantity (LF) of fence installed, maintained, and removed as shown on the approved construction plans.
 3. Item also includes all maintenance required to meet County specifications.
- K. Structure Rim Adjustment
1. Item(s) shall be completed in accordance with Ecorse Standard Details and the 2020 MDOT Standard Specifications.
 2. Payment shall be made only for the quantity (EA) adjusted and performed as shown on the approved construction plans.
 3. This pay item also includes removal and resetting of existing structure cover. These structures can be storm, sanitary, or water.
 4. Payment includes complete adjustment per City of Detroit Standard Details.
- L. Provide and Install New Sea Wall
1. Item(s) shall be completed in accordance to Section 31 62 16 Steel Sheet Piles, Section 31 23 00 Excavation and Fill, and details and notes on CP-13 and CP-14.
 2. Payment shall be made only for the quantity (LF) of material installed and performed as shown on the approved construction plans.

3. Item includes nonwoven geotextile, backfill, pile cap, etc.
- M. Provide and Install New Sea Wall Extension
1. Item(s) shall be completed in accordance with Section 31 62 16 Steel Sheet Piles, Section 31 23 00 Excavation and Fill, and details and notes on CP-13 and CP-14.
 2. Payment shall be made only for the quantity (LF) of material installed and performed as shown on the approved construction plans.
 3. Item includes nonwoven geotextile, backfill, pile cap, etc.
- N. Provide and Install Approved Material Earth Berm
1. Item(s) shall be completed in accordance with Section 31 23 00 Excavation and Fill and notes on CP-14.
 2. Payment shall be made at the discretion of the Owner based on a percentage of completion.
 3. Berms shall consist of clean clay materials and full complete grading as detailed on the plans.
- O. A.B. Ford & Lakewood Park Work (Complete)
1. Item(s) shall be completed in accordance with Section 31 62 16 Steel Sheet Piles, Section 31 23 00 Excavation and Fill, and details and notes on CP-15 and CP-16.
 2. Payment shall be made at the discretion of the Owner based on percentage of completion.
 3. Item includes all work associated with A.B. Ford Park and Lakewood Park as shown on CP-15 and CP-16.
 4. Item includes but not limited to removal, repair of seawall, caps, tiebacks, walers, clearing, backfill, grading, restoration, etc.
 5. The scope of work may be similar to other pay items for other areas of work, but all work in this area is intended to be a lump sum.
- P. Provide and Install HMA Pavement/Aggregate Base
1. Item(s) shall be completed in accordance with Section 32 12 16 Asphalt Paving, the 2020 MDOT Standard Specifications, and City of Detroit Standard Paving Details.
 2. Payment shall be made only for the actual quantity (SYD) of material installed and performed as shown on the approved construction plans.
 3. Quantities on construction plans estimated based on planned area. Area measurements will be taken prior, during, and following installation of material.
 4. This item includes the aggregate base as specified in the pavement cross section on the approved construction plans.
- Q. Provide and Install 2 FT Butt Joint
1. Item(s) shall be completed in accordance with Section 32 12 16 Asphalt Paving, the 2020 MDOT Standard Specifications, and City of Detroit Standard Paving Details.
 2. Payment shall be made only for the actual quantity (FT) installed and performed as shown on the approved construction plans.
 3. Work includes, but is not limited to, removing and disposing of concrete or HMA materials, including saw cutting and/or trimming existing surface.

4. Detail as specified with Section 501 of the MDOT Standard Specifications for Construction.
- R. 8 FT Tall Chain Link Fence
 1. Item(s) shall be completed in accordance with detail provided on CP-02.
 2. Payment shall be made only for the quantity installed and performed as shown on the approved construction plans at 8' height.
 3. Work includes, but is not limited to, installation of new fence and appurtenances (including posts), landscape restoration, and related cleanup.
- S. Restoration
 1. Item(s) shall be completed in accordance with Restoration Notes on CP-02.
 2. Payment shall be made at the discretion of the Engineer as an estimated percentage of the complete project. 100% payment shall be made following vegetation establishment of areas needing restoration.
 3. Item is intended as a lump sum for complete restoration including topsoil and seeding for the entire disturbed area.

01 23 00 ALTERNATES

- A. NOT USED

01 24 00 VALUE ANALYSIS

- A. Owner reserves the right to perform value engineering on the Contractor's submitted Bid Form prior to creation of a final Agreement.
- B. Analysis takes place between the Engineer and Owner followed by negotiations with Contractor regarding deductions and/or alternative items.

01 25 00 SUBSTITUTION PROCEDURES

- A. Substitutions are defined as changes in products, materials, fabrication, equipment, and methods of construction from those required by the Contract Documents and proposed by the Contractor.
- B. Engineer will consider requests for substitution if received within 60 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Engineer.
- C. The administrative requirements for submittal procedures under Section 01 33 23 Shop Drawings, Product Data, and Samples further apply to substitutions.
- D. Unless explicitly stated as a Basis-of-Design, any reference to specific products or catalog numbers in the plans and/or specifications shall not be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design. Should the Contractor desire to make substitutions, it shall submit the following:
 1. A complete list of proposed desired substitutions prior to signing of the Contract.
 2. A full description of the proposed substitution, the reason for the substitution, supporting documentation of the substitution verifying its conformance with the specifications, and a statement of the substitute's effect on adjacent or related components.
 3. Engineering, catalog, and performance history data as required by the Engineer.
 4. List of similar installations for completed projects with project names contact information of engineers and owners.

5. A detailed comparison of significant characteristics of proposed substitution with those of the Work specified. Significant characteristics may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 6. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 7. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 8. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 9. If the proposed substitution cannot be provided within the Contract Time and/or Price, the Contractor shall submit the substitution in the form of a Request for Change Order along with supporting cost and credit documentation under Section 01 26 00 Contract Modification Procedures.
- E. The following conditions must be satisfied for the Engineer to consider the Contractor's proposed substitution:
1. Requested substitution does not require extensive revisions to the Contract Documents.
 2. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 3. Substitution request is fully documented and properly submitted per Section 01 33 23 Shop Drawings, Product Data, and Samples.
 4. Requested substitution will not adversely affect Contractor's Construction Schedule.
 5. Requested substitution has received necessary approvals from authorities having jurisdiction.
 6. Requested substitution is compatible with other portions of the Work or Contractor has an approved plan for adapting the design to the proposed substitute item.
 7. Requested substitution has been coordinated with other portions of the Work.
 8. Requested substitution provides specified warranty.
- F. Contractor shall coordinate related Work and modify surrounding Work to integrate the Work for each substitution.
- G. Contractor shall abide by the Engineer's judgement when proposed substitute materials or items of equipment are judged to be unacceptable and shall furnish the specified material or item of equipment in such case. All proposals for substitutions shall be submitted in writing by the Prime Contractor only, with its stamped approval, and not by Subcontractors or Suppliers. The Engineer will approve or reject proposed substitutions in writing within a reasonable time. No substitute materials shall be used unless approved in writing.

01 26 00 CONTRACT MODIFICATION PROCEDURES**01 26 13 REQUESTS FOR INTERPRETATION**

- A. Immediately upon discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, Contractor shall prepare and submit a Request for Interpretation (RFI) on the form specified.
- B. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.

- C. Contractor shall coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
- D. Content of the RFI
 - 1. Detailed, legible description of item needing interpretation
 - 2. Project name and number
 - 3. Date of issuance
 - 4. Names of Owner, Engineer, and Contractor
 - 5. RFI number, numbered sequentially
 - 6. Specification section, title, and related paragraph(s), as appropriate
 - 7. Drawing number and detail references, as appropriate
 - 8. Field dimensions and conditions, as appropriate
 - 9. Contractor's signature
 - 10. Attachments such as drawings, descriptions, photos, measurements, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, standards, and details of affected materials, assemblies, and attachments.
- E. Engineer shall review each RFI, determine any action required, and return a response to the Contractor within ten working days.
- F. Engineer's action may include a request for additional information, in which case, additional working days will be required to provide a response.
- G. Any official response from the Engineer shall not be considered an official change to the Scope of Work until further modification forms are approved.

01 26 39 FIELD ORDERS

- A. Owner shall submit requests, via the Engineer, to the Contractor for minor changes in the Work without changes in Contract Price or Contract Times.
- B. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this work.

01 26 49 WORK CHANGE DIRECTIVES

- A. Owner shall submit directives, via the Engineer, to the Contractor to proceed promptly with changes to the Work, prior to agreeing to changes on Contract Price and Contract Times only if one or both of the following conditions are met:
 - 1. Owner and Contractor cannot agree on pricing of proposed change.
 - 2. Owner has indicated the necessity to proceed for schedule or other Project reasons.
- B. The estimated change in Contract Price and Contract Times shall be stated on Work Change Directive and be considered non-binding and preliminary.

01 26 57 CHANGE ORDER REQUESTS

- A. Contractor shall submit written requests for payments for Extra Work to the Owner, via the Engineer. No claim for Payment for extra Work shall be valid unless so made. In all cases, the Contractor's itemized estimate sheets showing all labor and material shall be submitted to the Engineer. Contractor shall indicate an extension of the Contract times, if applicable.
- B. Either the Owner, via the Engineer, may initiate communications with the Contractor to submit a request or the Contractor may submit one when the need for one is identified by the Contractor.

1. Engineer may issue a request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change, and the period during which the requested price will be considered valid. Contractor shall prepare and submit an estimate within 10 days.
 2. Contractor may propose changes by submitting a request to the Engineer describing the proposed change and its full effect on the Work including a statement describing the reason for the change and its effect on the Contract Price and Contract Times. Statement shall include full documentation and a statement describing the effect on Work by separate or other contractor and document any requested substitutions in accordance with Section 01 25 00 Substitution Procedures.
- C. If necessary, Engineer will request additional information or documentation for evaluation within 7 days of receipt of a Change Order Request. Engineer will notify Contractor of acceptance or rejection of the Request within 15 days of receipt of initial request, or 7 days of receipt of additional information or documentation, whichever is later.

01 26 63 CHANGE ORDERS

- A. Owner, via the Engineer, shall issue the official Change Order for signatures of parties in response to the Contractor's approved request for Extra Work.
- B. The Owner's order for Extra Work shall be in the form of a Change Order to be signed by both Owner and Contractor and shall specify any extension of the Contract Times and one of the following methods of payment:
1. Unit Price Change Order: Unit Prices or combinations of Unit Prices which formed the basis of the original Contract. A balancing change order shall be issued by the Engineer at the conclusion of the Project to reflect final quantities at these unit prices.
 2. Stipulated Price Change Order: Prices or combinations of prices which did not form the basis of the original Contract. Sum shall be based on proposal request and Contractor's price quotation (based on time and material) or Contractor's request for a Change Order as approved by Engineer. Change Order shall be executed prior to beginning additional Work.
 3. Time and Material Change Order: Submit itemized account and supporting data after completion of change within time limits indicated in Section 00 72 00 General Conditions. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work. Engineer shall determine the change allowable in Contract Price and Contract Times as provided in the Contract Documents. Actual cost of direct Work by the Contractor and any subcontractor plus percentages for overhead and profit are also specified under Section 00 72 00 General Conditions.
 - a. Labor Costs shall be the amount shown on the Contractor's payroll plus unemployment taxes and Workmen's Compensation Insurance when such additional taxes or insurance costs can be shown to have been incurred.
 - b. Material Costs shall be the net price paid for material delivered to the site of the Work.
 - c. Equipment and equipment rental shall be the actual additional costs incurred for necessary equipment actually used in the Extra Work. No payment will be made for equipment not used in the Extra Work. All costs shall be computed using the basic monthly rental rate as published in the current edition of "Rental Rates for Construction Equipment Bluebook" published by the Equipment Guide Book Company. For periods of less than a month, the daily rate shall be

computed as 1/22 of the monthly rate with no allowance for fuel or other operating costs.

01 27 00 RESERVED FOR FUTURE**01 28 00 RESERVED FOR FUTURE****01 29 00 PAYMENT PROCEDURES****01 29 73 SCHEDULE OF VALUES**

- A. In cases where all required items on the Bid Form are Lump Sum, the Contractor shall provide and continuously update a Schedule of Values.
- B. Contractor to coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Contractor to correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets,
 - b. Submittals Schedule,
 - c. Contractor's Construction Schedule.
 - 2. Contractor to submit the Schedule of Values to Engineer at earliest possible date but no later than 10 days after the Notice to Proceed.
- C. Format and Content
 - 1. Use the Bid Form and Table of Contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division
 - b. Description of the Work
 - c. Name of subcontractor
 - d. Name of manufacturer or fabricator
 - e. Name of supplier
 - f. Change Order numbers that affect value
 - g. Dollar value: Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide several line items for principal subcontract amounts, where appropriate.
 - 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 - 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - 6. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
 - 7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
10. Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

01 29 76 PROGRESS PAYMENT PROCEDURES**A. Contractor Applications for Payment**

1. The Owner shall pay, and the Contractor shall receive, the prices bid on the Bid Form, or agreed upon, less any deduction for any uncompleted portion, based upon measurements made by the Engineer or as otherwise herein stipulated.
2. As defined under Section 00 72 00 General Conditions, the Contractor shall submit to the Owner, through the Engineer, a Request for Payment for Work performed.
3. The quantities submitted by the Contractor shall be reviewed by the Engineer and revised by the Contractor as directed by the Engineer.
 - a. With each Request for Payment that incorporates the Engineer's comments, the Contractor shall submit the Application for Payment Form from Section 00 62 76, serving as the Contractor's declaration that the quantities performed for the application period are accurate or are consistent with the values on the Schedule of Values.
 - b. Draft Requests for Payment shall be submitted after the first day of the month following the month for which Work was performed and shall be for a period of approximately 30 days.
4. Partial Waivers of Lien may be required from subcontractors and suppliers when they have notified the Owner or the Engineer in writing of a claim on the Project. Also to be included are any other periodic reports required (monthly payrolls, etc.).
5. Whether the basis of payment under the Contract is Lump Sum or Unit prices, the procedure for Requests for Payment and Payment to Contractor are defined under Section 00 72 00 General Conditions.
6. If the Request for Payment includes materials and equipment stored on the site, it shall be accompanied by invoices from the manufacturer or Supplier or such other information satisfactory to the Owner.
7. Engineer's signature on the Request for Payment for each payment period shall constitute the Engineer's Certification for Payment to the Owner recommending payment to the Contractor.

B. Payment for Materials Stored on Site

1. The cost of materials and/or equipment not incorporated in the Work, that meets the Contract requirements, may be paid when all of the following conditions are met:

- a. Delivered materials/equipment are stored or stockpiled at the Project site or at a location approved by the Engineer;
 - b. The value of the delivered Materials to be used in one item of the Work is greater than \$3,000 and is not scheduled for placement in the Work within 30 days of delivery;
 - c. The invoiced amount shall be certified by the Supplier.
- C. Payment for Work Performed by Subcontractors and Suppliers
 1. If the Supplier notifies the Owner or Engineer that payment authorized by the Owner, has not been received, and the Supplier claim remains unsatisfied for more than 30 days after the Owner's payment to the Contractor then the amount provided by payment to the Supplier shall be deducted from the next Contractor Application for Payment.
- D. Payment Withheld by Owner
 1. The Owner may withhold any progress payment, in whole or in part, to the extent necessary to protect itself from loss on account of any of the following causes discovered after the submittal of the Contractor Application for Payment:
 - a. Defective Work
 - b. Evidence indicating probable filing of claims by other parties against the Contractor
 - c. Failure of the Contractor to make payment to Subcontractors and/or material Suppliers
 - d. Damage to another Contractor's work
 - e. Failure to submit periodic reports required by the Contract Documents
- E. Payment for Rejected Work and Materials
 1. The removal of rejected Work and materials and the re-execution of such Work in an acceptable state shall be done at the expense of the Contractor, and it shall pay the cost of replacing other contractors' work which is destroyed or damaged by the removal and subsequent replacement of the rejected Work or materials.
 2. The cost of removing rejected Work or materials by the Owner shall be paid by the Contractor within 30 days after written notice to pay is given by the Owner. If the Contractor does not pay the expenses of such removal, the Owner may sell the materials at auction or at private sale and shall pay to the Contractor the net proceeds therefrom after deducting all the cost and expenses incurred by the Owner for such removal. Should the sale price of such material be insufficient to pay the cost of removal, the difference shall be deducted from payments due the Contractor for Work done under this Contract.
- F. Payment for Uncorrected Work
 1. Should the Engineer direct the Contractor not to correct Work that has been damaged or that has not been performed in accordance with the Contract Documents, an equitable deduction from the Contract Price shall be made to compensate the Owner for the uncorrected Work.
- G. Payment for Work by the Owner
 1. The cost of the Work performed by the Owner in removing construction equipment, tools, supplies, and restoration and for correcting deficiencies shall be paid by the Contractor.
- H. Payment for Work Suspended by the Owner

1. If the Work or any part thereof shall be suspended by the Owner and abandoned by the Contractor, the Contractor will then be entitled to payment for all Work done on the portions so abandoned plus 15% of the value of the abandoned Work to compensate for overhead, plant expense, and profit on such abandoned Work.
- I. Payment for Work Done by Owner Following Termination of the Contract
 1. Upon termination of the Contract by the Owner, no further payments shall be due to the Contractor until the Work is completed.
 2. If the unpaid balance of the Contract Amount shall exceed the cost of completing the Work (including all overhead cost), the excess shall be paid to the Contractor. If the cost of completing the Work shall exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The cost incurred by the Owner, as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Owner and approved by the Engineer.
- J. Payment for Work Terminated by The Contractor
 1. Upon suspension of the Work or termination of the Contract by the Contractor in accordance with the General Conditions, the Contractor shall recover payment from the Owner for the Work performed, including loss on plant and materials, and including normal profit.
- K. Payment for Replacing Survey Control Points and Construction Stakes
 1. Notwithstanding any liability which may be imposed by law on the Contractor for loss or disturbance of survey points, the Contractor shall pay the cost of replacing survey points lost or disturbed because of Work under the Contract. In addition to the replacement cost, the Contractor shall be liable for any other expenses, damages, or mistakes caused by such loss or disturbance. The cost of replacing U.S. government corners, property corners, benchmarks, monuments, and reference points (known collectively as survey control points) shall be the actual cost as certified by the Engineer.
 2. The cost of replacing or relocating construction stakes shall not be based solely on the number of such stakes replaced but shall be based upon the number of occurrences in which the Engineer is required to replace or relocate lost or disturbed stakes. For each such occurrence, the cost shall be the actual cost to the Owner. The Engineer shall certify to the Owner in the final Certificate for Payment the actual cost for replacing all survey control points and/or construction stakes.
 3. The total actual cost as certified by the Engineer shall be deducted from the earned amount due the Contractor for Work under the Contract.
- L. Final Payment
 1. In addition to the Section 00 62 76 Application for Payment Form submitted by the Contractor with previous Requests for Payment, the Contractor shall also submit a completed Section 00 65 19 Certificate of Completion Form with their final Request for Payment.
 2. Final payment shall only take place following Substantial and Final Completion of the Project

END OF SECTION

01 30 00 ADMINISTRATIVE REQUIREMENTS

- M. The purpose of Section 01 30 00 Administrative Requirements is to provide administrative and procedural requirements for the management and coordination of Contractors, recording progress, processing submittals, and special project situations.
- N. Contractor shall coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- O. Contractor shall verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- P. Contractor shall coordinate space requirements and installation of mechanical and electrical Work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- Q. In finished areas except as otherwise indicated, pipes, ducts, and wiring shall be concealed within the construction. Coordinate locations of fixtures and outlets with finish elements.
- R. 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.

01 31 00 PROJECT MANAGEMENT AND COORDINATION

- A. A minimum of one week in advance of beginning Work, the Contractor shall notify all public bodies and other owners of such facilities of the proposed location of its operations, advising them that their property may be affected and that such measures as they may deem necessary should be promptly taken to protect, adjust, remove and/or rebuild them.
- B. Prior to working in or connecting to existing sewers, Contractor shall provide notice to and request permission from the Owner.
- C. Contractor shall provide Owner a minimum of two weeks' notice of intended shutoffs to local residences and businesses. Contractor shall coordinate with Owner to deliver a shutoff notice to all affected residences and businesses before any water main is shut off for installation or relocation. Whenever an existing gate valve must be opened or closed, the Contractor shall notify the water department of the community having jurisdiction. All valves shall be operated only by the corresponding community having jurisdiction.
- D. It is the Contractor's responsibility to coordinate its operations and those of its subcontractors to avoid interference and delays in the areas of common construction activities.
- E. If at any time, Contractor's resources appear to the Engineer to be inefficient, inappropriate, or insufficient to achieve the required quality or rate of progress of the Work, the Engineer may direct the Contractor to increase the efficiency, change the character, or increase the number of personnel and equipment, and the Contractor must comply. Failure of the Engineer to give such a direction will in no way relieve the Contractor of its obligations to secure the required quality or rate of progress of Work.

01 31 14 FACILITY SERVICES COORDINATION

- A. Communicate with Owner's public works department to ensure efficient and orderly coordination of construction operations.

- B. Any forms required by the Owner to accurately record entry, access, and/or shutdown of Owner's assets shall be completed by the Contractor and submitted to the Engineer and Owner.

01 31 16 MULTIPLE CONTRACT COORDINATION

- A. Coordinate the Work of this Project with Work performed in nearby areas under separate Contracts.
- B. Contractor shall cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract.
- C. List of other Contracts
 - 1. NOT USED

01 31 19 PROJECT MEETINGS

- A. Engineer shall arrange meetings, prepare agenda with copies for participants, preside at meetings, record meeting notes, and distribute copies within five days to the Owner, participants, and those affected by decisions made.

01 31 19.13 PRECONSTRUCTION MEETINGS

- A. After receipt of the Notice of Award, the Owner, via the Engineer, shall schedule a pre-construction meeting. The Contractor shall attend the pre-construction meeting at the time and place arranged by the Owner, at which various utility companies, the Engineer, the designated inspection agencies, local municipal officials, governmental agency representatives and the Owner's Representatives shall be present to discuss the Project. Subcontractor(s) may be required to attend at the discretion of the Engineer.
- B. Contractor shall obtain all permits prior to the meeting and electronically submit each permit to the Engineer prior to Construction.
- C. The Contractor shall submit at the meeting, unless previously submitted, the construction schedule and a list of Subcontractors. Contractor shall be prepared to discuss Project staging and sequence at the pre-construction meeting.
- D. General Agenda
 - 1. Distribution of executed Contract Documents.
 - 2. Submission of list of Subcontractors, list of products, Schedule of Values (if applicable), and current progress schedule.
 - 3. Contractor shall deliver copies of all the required permits. No Work may begin until Contractor has paid for and received permits from the authorized agencies.
 - 4. Designation of personnel representing the parties in Contract and the Engineer.
 - 5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 6. Scheduling.
 - 7. Scheduling activities of geotechnical Engineer.
 - 8. Use of premises by Owner and Contractor.
 - 9. Owner's requirements.
 - 10. Construction facilities and controls provided by Owner.
 - 11. Survey and construction layout.

12. Security and housekeeping procedures.
13. Procedures for testing.
14. Procedures for maintaining record documents.
15. Requirements for start-up of equipment.
16. Inspection and acceptance of equipment put into service during construction period.

01 31 19.23 PROGRESS MEETINGS

- A. Periodic progress meetings shall be conducted, as determined necessary by the Owner, during the life of the Contract. The Contractor's job superintendent shall attend these progress meetings; Subcontractor(s) and supplier(s) shall also attend these meetings as appropriate to agenda topics for each meeting.
- B. The purpose of these meetings shall be to update the construction schedule, discuss and resolve construction-related problems, and obtain and exchange Project-related information from the Owner and the Engineer.
- C. General Agenda
 1. Review previous meeting notes.
 2. Review of Work progress versus Work submitted or revised schedule.
 3. Field observations, problems, and decisions.
 4. Identification of problems which impede planned progress.
 5. Review of submittals schedule and status of submittals.
 6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding Work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and Work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to Work.

01 31 19.33 PREINSTALLATION MEETINGS

- A. Contractor shall convene pre-installation conferences at Work sites prior to commencing new phases of the Work. Attendance is required from entities directly affecting or affected by Work.
- B. Contractor shall notify Engineer five working days in advance of meeting date.
- C. Contractor shall review conditions of installation, preparation and installation procedures, and coordination with related Work.
- D. Contractor shall prepare agenda, preside at conference, record meeting notes, and distribute electronic copies within five days after conference to Engineer and participants.

01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION**01 32 13 SCHEDULING OF WORK**

- A. Contractor shall communicate with the Engineer's inspectors each day regarding the time and location of the following day's Work. The Contractor's return to site shall be communicated prior to arriving on site for that day.

- B. The Contractor shall give the Owner, Engineer, and the affected permitting agencies written notice at least 48 hours in advance (Monday through Friday only) of the following
1. Any Work to be performed.
 2. Changes in the Contractor's work force, which will increase or decrease the number of construction technicians required on the Project (final determination made by Engineer).
 3. Manufacture and delivery of material and beginning of construction for the purpose of proper and timely inspection.

01 32 16 CONSTRUCTION PROGRESS SCHEDULE

- A. Examples of acceptable Progress Schedule formats:
1. Gantt charts/bar charts showing activities of the schedule are listed along the vertical axis with bars extending along a horizontal time axis. Each activity is given a starting and finishing date with overlapping bars indicating simultaneous activities.
 2. Milestone charts showing significant events in the life of the Project such as installation of equipment, completion of phases, file and data processing, starting of the new system, and substantial and final completion.
 3. Activity-On-Arrow (AOA) network diagrams showing the logical relationships between activities, dependencies, early and late start and finish dates, critical path, and controlling activities
 4. Activity-On-Arrow (AOA) network diagrams using finish-to-start precedence showing significant activities bounded by nodes.
- B. Contractor shall submit initial Construction Schedule at or prior to the Pre-Construction Meeting with revised schedules submitted with each Application for Payment. Schedules shall indicate the estimated percentage of completion for each item of Work and the submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and under Allowances.
- C. Contractor shall coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of Subcontractors.
- D. Contractor shall coordinate Contractor's Construction Schedule with the Schedule of Values (if applicable), list of Subcontracts, submittals schedule, progress reports, payment requests, and other required schedules and reports.
1. Secure time commitments for performing critical elements of the Work from parties involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.
- E. Schedule shall extend from the date of Commencement of the Work to the date of Final Completion and shall include milestones for Substantial Completion and Restoration.
- F. Schedule shall include constraints and Work restrictions indicated in the Contract Documents and how the sequence of the Work is affected.
- G. Schedule shall indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
1. Subcontract awards
 2. Submittals
 3. Purchases
 4. Mockups

5. Fabrication
 6. Sample testing
 7. Deliveries
 8. Installation
 9. Tests and inspections
 10. Adjusting
 11. Curing
 12. Startup and placement into final use and operation
- H. Contractor shall identify each major area of construction for each major portion of the Work and shall indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
1. Structural completion
 2. Permanent space enclosure
 3. Completion of mechanical installation
 4. Completion of electrical installation
 5. Substantial Completion
 6. Final Completion
- I. At monthly intervals, or at the request of the Engineer, the Contractor shall update the construction schedule to reflect actual construction progress and activities. The Contractor shall issue the schedule electronically and at each regularly scheduled progress meeting.
- J. If, in the opinion of the Owner, the Contractor falls behind the Progress Schedule, the Contractor shall take steps as may be necessary to improve their progress and to submit for approval such supplementary schedule or schedules in short form as may be deemed necessary to demonstrate the manner in which the agreed rate of progress will be regained, all without additional cost to the Owner.
- K. Failure of the Contractor to comply with the requirements of the Owner under this provision shall be grounds for determination by the Owner that the Contractor is not prosecuting the work with such diligence as will ensure completion within the time specified. Upon such determination, the Owner may terminate the Contractor's right to proceed with the work, or any separate part thereof, in accordance with the appropriate section of the Contract Documents.

01 32 23 SURVEY AND LAYOUT DATA

- A. All construction survey Work provided by the Contractor shall be performed under the supervision and direction of a Land Surveyor licensed to practice in the state where the Work is being performed. All stakes provided shall be appropriate for the conditions such as any of the following
1. 5/8" iron rebar
 2. 1" x 2" x 18" hardwood hubs/Lath
 3. Concrete nails
- B. All stakes shall be clearly marked in the field describing their position with respect to the Work. Contractor shall provide the appropriate staking material.
- C. The Owner shall provide the following staking one time only at the Contractor's written request, which will include location and elevations for the following (as applicable):
1. Clearing

- a. One stake every 50 feet to 100 feet on the limits of clearing.
2. Sanitary Sewer
 - a. Open Cut Construction
 - 1) One offset stake every 100 feet parallel to sewer.
 - 2) One centerline stake and one offset stake for structures.
 - b. Directional Drill Construction
 - 1) One centerline stake every 100 feet on drill path.
 - 2) One centerline stake and one offset stake for structures.
3. Pump Station
 - a. One centerline stake and one offset stake for each structure associated with the pump station.
 - b. The access driveway will be staked once.
4. Water Main:
 - a. Open Cut Construction
 - 1) One offset stake every 50 feet parallel to water main.
 - 2) One centerline stake and one offset stake for structures and hydrants.
 - b. Directional Drill Construction
 - 1) One centerline stake every 50 feet on drill path.
 - 2) One centerline stake and one offset stake for structures and hydrants.
- D. Contractor will pay for any re-staking or modifications to the staking as described above. A Change Order will be used to modify the Contract if re-staking or modification is requested.
- E. For Contractor-provided staking, the Engineer will provide control lines and benchmark staking. All other lines and levels necessary to the location and construction of the Work under the Contract shall be established by the Owner.
- F. The Contractor shall carefully compare all elevations given on the Contract Drawings with the information shown on the construction survey stakes and shall call the Owner's attention to any discrepancies before proceeding with the Work. When stakes are to be set, the Owner and Engineer must each be given 48 hours' notice that stakes will be required.
- G. The Contractor shall preserve benchmarks, property corners, United States Government corners, established reference points, and stakes, and in case of willful or careless destruction, it shall be charged with the resulting expense and shall be responsible for delays and errors caused by their unnecessary loss or disturbance.
- H. Wherever in the Contract Documents there are given survey stations, bearings, or similar survey designations for the location of structures, or portions of structures, it is understood that they are approximate only, and no change of such designations caused by the developments of construction shall be made the basis of claims for payment other than provided for in the Contract.

01 32 33 PHOTOGRAPHIC DOCUMENTATION

- A. NOT USED

01 32 36 VIDEO MONITORING AND DOCUMENTATION

- A. If listed as an item on the Bid Form, Contractor shall furnish all labor, materials, and equipment necessary for a complete color audio-video record of the existing surface features for the entire Project to accurately document the pre-construction conditions within the proposed construction's zone of influence.
- B. Should no item exist on the Bid Form, furnishing of such an audio-video recording shall be at the sole discretion of the Contractor.
- C. The purpose is to document the existence or nonexistence of any faults, fractures, or defects to surface features including but not limited to all roadways, pavements, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, buildings, landscaping, trees, shrubbery, and fences.
- D. Contractor shall discuss with Engineer and outline the coverage expected for the Project, prior to the start of the video documentation and prior to placement of equipment and materials on the jobsite
- E. The Owner shall have the authority to reject all or any portion of recording not conforming to specifications as well as to designate what areas may be omitted or added for audio-video coverage.
- F. Submittal Format and Quality
 - 1. A set of Construction Drawings marked with the number and points of beginning and ending of each tape roll, and with arrows indicating direction of travel, shall be submitted to the Engineer.
 - 2. Video shall be produced with current, high quality, high definition (HD) camcorders, submitted via portable hard drive, thumb drive, or electronically via a file hosting service.
 - a. With 1/4-inch, 1/3-inch or 1/2-inch charged coupled device imaging systems.
 - b. With optical stabilization; electronic stabilization is not acceptable.
 - c. With 20x minimum optical magnification.
 - d. Capable of producing ATSC 1080 lines of resolution/60 fields/30 frames per second.
 - e. Capable of 3-luxillumination minimum.
 - 3. Video shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of picture imperfection.
 - 4. Audio shall reproduce the commentary of the camera operator with proper volume and clarity, free from distortion and background noise. Furthermore, it shall assist in maintenance of viewer orientation and in identification, clarification, or objective description of the surface features being shown in the video portion of the recording.
 - 5. At all times, video shall display the time, date, and location of recording (street, address, easement name, etc.)
 - 6. Files and folders shall be labeled with appropriate Project information and be able to be cross referenced with runsheets and Contract Drawings. Labeling shall include:
 - a. Project title.
 - b. Location of Project.
 - c. Month and year of coverage.
 - d. Stationing

7. Runsheet logs shall accurately catalog the contents of each video and include:
 - a. Street name, easement, or address.
 - b. Sheet number or numbers relative to the line entry of a particular area of coverage.
 - c. Real time code indexing for each segment of the Project indicating hours, minutes, and seconds to cross reference with playback equipment to locate specific points of interest on the Project.
 - d. Direction of travel for each specific segment.
 - e. Viewing side for each Project segment.
 - f. Starting point for each Project segment.
 - g. Ending point for each Project segment.
 - h. General Project information such as Project title, Owner, and date.
8. The engineering stationing numbers must be continuous, accurate, and correspond to the Project stationing and must include the standard engineering symbols. For example, 14+18. This transparent information must appear in the lower half of the viewing screen.
- G. For accessible areas, coverage shall consist of a single, continuous recording which begins at one end of a particular construction area and continues to the other end of that construction area, recorded on both sides of the right-of-way, easement, or street
- H. For non-accessible areas, coverage shall consist of an organized, interrelated sequence of recordings at various positions along the proposed construction area. Such coverage shall be obtained by walking or special conveyance approved by the Engineer.
- I. Houses and buildings shall be identified visually by house number, when visible, in such a manner that structures of the proposed system, i.e., manholes on a sewer system, and gate wells and hydrants on a water system can be located by reference. In all instances, however, location shall be identified by audio or visual means at intervals not to exceed 100 linear feet in the general direction of travel.
- J. The rate of speed in the general direction of travel of the conveyance used during taping shall not exceed the following rates, categorized as follows:
 1. High density areas: 30 feet/min
 - a. Hard surface curbs, drives and sidewalks
 - b. 50-foot lots
 - c. Very few empty lots
 2. Medium density areas: 60 feet/min
 - a. Gravel roads
 - b. Hard and soft surface drives
 - c. No sidewalks
 - d. Culverts and headwalls
 - e. 100-foot lots
 - f. Few empty lots
 3. Low density areas: 90 feet/min
 - a. Gravel roads
 - b. Small fields or woods

- c. Occasional houses
- 4. Very low density areas: 120 feet/min
 - a. Gravel roads
 - b. Large fields
 - c. Sparse number of houses
- K. All recording shall be done during times of good visibility. No recording shall be done during periods of visible precipitation, or when more than 10% of the ground area is covered with snow, unless otherwise authorized by the Owner.
- L. Vehicles
 - 1. When conventional wheeled vehicles are used, camera shall be mounted securely to produce steady viewing with lens not less than 8 feet above the ground of the area being viewed, or at a level to facilitate best perspective and line of site when using conventional wheeled vehicles.
 - 2. Vehicles shall be plainly marked with company name and telephone number with caution signs, flags, and strobes to affect a safe and hazard free operation
- M. Contractor shall obtain permission of property owner before entering any private property. If refused entry, Contractor shall notify Engineer and wait until permission is obtained before entering the property.

01 33 00 SUBMITTAL PROCEDURES

- A. Contractor shall electronically submit to the Engineer full information indicating the source of materials and names of major suppliers which the Contractor proposes to use. This information shall be complete to the extent that the Engineer may judge if the proposed materials and supplies will meet the Contract requirements. Prior to the Engineer's approval, any work done by the Contractor is at its own risk.
- B. Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records, and other data as the Owner may request, concerning Work performed or to be performed under this Contract.
- C. The Engineer's approval of information, supplied by the Contractor, shall in no way release the Contractor from its responsibility for the proper installation and performance of any material, equipment or arrangement, or from its liability to replace same should it prove defective.
- D. Contractor shall refer to the Specifications throughout Divisions 02 through 49 regarding specific submittal requirements for each area of work.

01 33 13 CERTIFICATES

- A. Contractor shall secure and submit to the Engineer two copies of materials certificates. The Contractor shall furnish certification that all materials and manufactured products meet or exceed the requirements set forth in the Contract Documents.
- B. Source of the certification shall be as approved by the Engineer. No materials or manufactured products shall be incorporated in the Work prior to the Engineer's receipt of such certification. Manufacturer's pipe certificates are to be furnished at the time pipe is delivered to the Project site.

01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

- A. After verifying all field measurements, the Contractor shall electronically submit to the Engineer one reproducible PDF of all shop drawings, product data, and samples, which shall have been checked and approved by the Contractor. Hard copies of submissions will not be accepted unless a complete electronic copy has been previously submitted.
- B. Within 15 days after the Effective Date of Agreement, submit complete list of major products proposed for use with name of manufacturer, trade name, and model number of each product.

- C. The Contractor shall be responsible for submissions at the proper time so as to prevent delays in fabrication and delivery of materials. A minimum of 21 calendar days shall be allowed for checking and processing shop drawings. Should another agency be involved in the review process, the timely review shall be extended accordingly.
- D. All submissions shall include a transmittal with the Contractor's letterhead referenced to the appropriate specification section, paragraph number, and/or sheet number clearly indicating the location, service, and function of each particular item in addition to general information such as the Owner's name, Project name, and date. Submissions shall provide space for Contractor and Engineer review stamps.
- E. Submittal shall include the Contractor's signature along with a statement certifying that the review, 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.
- F. Shop Drawings and Product Data
 - 1. The data shown on the submittals will be complete with respect to the dimensions, design criteria, materials of construction, etc. to enable the Engineer to review the information as required. All details shall show clearly the relations of the various parts to the main members and lines of the component, and, where correct fabrication of the Work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted.
 - 2. Each submittal shall be marked to identify applicable products, models, options, and other data. Manufacturers' standard data shall also be supplemented to provide information unique to this Project.
 - 3. The Contractor shall revise submittals to conform with Engineer's comments thereon and electronically re-submit the corrected shop drawings, identifying all changes made since the previous submittal. No Work requiring a shop drawing shall commence until the submission has been reviewed by the Engineer and found to be in compliance as set forth above.
 - 4. The Contractor shall coordinate each submittal with the requirements of the Contract Documents and shall submit Shop Drawings for major equipment items in one package to permit checking complete installation details in all involved trades. The Engineer's review of a separate item does not constitute approval of an assembly in which the item functions.
 - 5. It shall be the responsibility of the Contractor to ensure that items furnished fit the space available. Contractor shall make necessary field measurements to ascertain space requirements, including those for connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Drawings and Specifications. Where equipment requiring different arrangement of connections from those shown is approved, it shall be the responsibility of the Contractor to install the equipment to operate properly, and in harmony with the intent of the Drawings and Specifications, and to make all changes in the Work required by the different arrangement of connections.
 - 6. At the time of each submission, the Contractor shall, in writing on such drawing, call the Engineer's attention to any deviation that the submittal may have from the requirements of the Contract Documents. Any authorization for such deviation shall be by appropriate Contract Modification only.
 - 7. The Engineer will review such submittals with reasonable promptness. Comments made on the shop drawings during such review shall not relieve the Contractor from compliance with requirements of the Contract Documents. The review is only for review of general compliance with the design concept of the Project and general compliance with the information given in the Contract Documents. Notwithstanding such review, the Contractor shall be responsible

for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating its Work with that of all other trades, and performing the Work in a safe and satisfactory manner. In addition, such review shall not relieve the Contractor from the responsibility for any error or omission in the shop drawings.

8. The Contractor shall revise the submittal to conform with Engineer's comments thereon and electronically re-submit the corrected shop drawings. No Work requiring a shop drawing shall commence until the submission has been reviewed by the Engineer and found to be in compliance as set forth above.

G. Samples

1. Contractor shall furnish samples of material as may be required for examination and test. All materials for tests shall be taken according to methods provided in the Specifications. The Contractor shall furnish such assistance and facilities as the Engineer may require for collecting, storing, and forwarding the samples. The entire cost of taking the samples and delivering them to the testing authority shall be paid for by the Contractor at no cost to the Owner. The physical cost of testing by the testing authority shall be paid for by the Owner at no cost to the Contractor unless otherwise indicated in the Supplementary Conditions.
2. Failure of samples to meet Contract requirements shall be sufficient cause for refusal to consider any further samples of the same brand from the manufacturer whose equipment has failed.
3. Any of the materials or equipment delivered on the site or in place may be taken by the Owner or Engineer for testing. Materials or equipment which fail to meet Contract requirements will automatically void previous approvals of the items tested. The Contractor shall replace all such disapproved materials or equipment at its own cost.
4. Tests will be made by such methods and in such numbers as the Engineer determines to be adequate and equitable. When materials are required to conform to Federal, NCPI, AWWA, or ASTM specifications, and such specifications are accepted as establishing the technical qualities and testing methods, they shall not necessarily govern the number of tests required to be made. The Engineer may require laboratory tests on samples submitted or may approve materials on the basis of data submitted in certificates with the samples.
5. If the tests of the samples submitted indicate that the proposed material will not conform to the Contract requirements, the Engineer will notify the Contractor that the proposed material is unacceptable and rejected and will furnish the Contractor the basic reasons for such rejection. However, the Engineer will not be required to furnish the Contractor with copies of all the test data and results.
6. All materials rejected by the Owner or its Representative shall be indelibly marked and immediately removed from the site of the Work.

01 34 00 RESERVED FOR FUTURE

01 35 00 SPECIAL PROCEDURES

01 35 23 OWNER SAFETY REQUIREMENTS

- A. All necessary safety requirements shall be observed during construction in full accordance with MIOSHA/OSHA standards.
- B. Contractor shall provide safe pedestrian walkways at all times.
- C. Prior to construction, the Contractor shall submit to the Engineer a copy of its safety program for confined space entry in accordance with current Occupational Safety and Health Administration (OSHA) and the local State OSHA requirements. Prior to entry

into any confined space, the Contractor shall submit to the Engineer a copy of its "daily" entry permit in accordance with current OSHA and the local State OSHA requirements.

- D. Manholes left open shall have barricades surrounding the manhole and yellow caution tape attached to the barricades. Any open excavations shall have orange snow fencing surrounding the excavation.
- E. Sheet and brace excavations as necessary to ensure safety of the workmen, protection of the Work or protection of adjoining structures. The Contractor will be paid no extra compensation for sheeting or bracing.
- F. Railroad Crossing
 - 1. All Work within a railroad right-of-way shall be in accordance with the requirements of the railroad company having jurisdiction over the right-of-way. The Contractor shall reimburse the railroad company for any necessary expense to which it is put incidental to the construction in such right-of-way, including the cost of inspectors, flagmen, underground markers, etc.
 - 2. Seventy-two hours' notice, exclusive of Saturdays, Sundays, and holidays, shall be given to the railroad superintendent before any work is performed within a railroad right-of-way.
- G. Emergency Calls
 - 1. Contractor shall furnish to the Engineer a list, including telephone numbers, of its employees designated to receive emergency calls outside of the regular working hours. These employees shall be authorized and equipped to take immediate action to remedy any hazardous situation in connection with the Work which is reported to them by the Engineer or Police Dept.
 - 2. Contractor shall have a documented plan to respond to any associated basement flooding that may occur. Contractor shall have a cleaning crew on call to sanitize basements and the like which have flooded due to the Contractor's operations.
 - 3. If damage has occurred due to a flooded basement or the like due to the Contractor's operations, the Contractor shall take all necessary means to immediately satisfy the resident and shall incur all costs associated with such.
- H. Ventilation Safety
 - 1. Means and equipment shall be provided as may be required for detection of and protection against gas encountered in the Work and to safeguard the workers employed. Such means and equipment shall comply with all applicable requirements of the United States Bureau of Mines and the U.S. Department of Labor.
 - 2. In any shaft, tunnel, sewer, or excavation, a positive and approved means shall be provided for testing the air quantitatively for carbon monoxide, nitrogen dioxide, flammable or toxic gases, dusts, mists, fumes, and oxygen deficiency. If gas above the allowable limits is encountered, the workers shall be ordered to withdraw from the shaft, tunnel, sewer, or excavation. Ventilating equipment of sufficient capacity and suitable type to dilute the gas adequately and quickly shall be promptly installed and operated. Gas in gas pockets shall be removed by bleeders to the main exhaust line of the ventilating system until such time that the gas pocket is sealed off. The workers shall not return to Work until the shaft, tunnel, sewer, or excavation has been thoroughly examined for harmful or dangerous gas and oxygen deficiency and found to be within the allowable limits. Suitable signs shall be conspicuously placed at hazardous locations prohibiting smoking and the use of open flame.
 - 3. No open flame or other open light shall be used in the tunnels, shafts, sewers, or gas producing excavations to which entry is necessary. Should an open flame be necessary for Work such as cutting existing steel and the like, it shall

be used only after a satisfactory gas test and as limited by the authorization of the Engineer.

4. Such regulations shall be rigidly enforced by the Contractor, and it shall promptly discharge any employee who violates such safety requirements.

01 36 00 RESERVED FOR FUTURE

01 37 00 RESERVED FOR FUTURE

01 38 00 RESERVED FOR FUTURE

01 39 00 RESERVED FOR FUTURE

END OF SECTION

01 40 00 QUALITY REQUIREMENTS

- A. The purpose of Section 01 40 00 Quality Requirements is to discuss regulatory requirements, reference standards, and issues of quality.
- B. Additionally, this Section will discuss the administrative and procedural requirements for proactive activities to assure the quality of construction before and during the execution of the Work (quality assurance) as well as for reactive activities to evaluate completed activities and elements for conformance with the requirements (quality control)

01 41 00 REGULATORY REQUIREMENTS**01 41 26 PERMIT REQUIREMENTS**

- A. All permits required shall be obtained by the Contractor. All permit fees, bonds, and insurance required by the issuing agencies shall be provided by the Contractor and must be kept current. The Contractor is responsible for all other fees, inspection costs, etc., and shall adhere to all requirements set forth in said permits.
- B. Engineer has anticipated the need for permits from the agencies listed in Section 00 31 46 Permits. Contractor shall obtain the permits and pay costs and post bonds as required.
- C. Contractor shall adhere to all permitting requirements set forth by each agency having jurisdiction.

01 42 00 REFERENCES**01 42 13 ABBREVIATIONS AND ACRONYMS**

A.	AASHTO	American Association of State Highway Transportation Officials
B.	ACI	American Concrete Institute
C.	ANSI	American National Standards Institute
D.	ASCE	American Society of Civil Engineers
E.	ASME	American Society of Mechanical Engineers
F.	ASTM	American Society for Testing and Materials
G.	AWS	American Welding Society
H.	AWWA	American Water Works Association
I.	CPAM	Concrete Pipe Association of Michigan
J.	EGLE	Department of Environment, Great Lakes, and Energy
K.	MDOT	Michigan Department of Transportation
L.	MMUTCD	Michigan Manual on Uniform Traffic Control Devices
M.	NCPI	National Clay Pipe Institute
N.	NASSCO	National Association of Sewer Service Companies

01 42 19 REFERENCE STANDARDS

- A. Whenever reference is made to specifications other than those contained herein, said specifications, in effect at the time of bidding, shall apply and be as binding as if fully repeated herein.
- B. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

- C. In interpreting any specification of standard referred to, terms such as "Purchaser," "Owner," and the like shall be understood to mean the Owner, as defined in the General Conditions. Terms such as "Manufacturer," "Supplier," and the like shall mean the Contractor.
- D. A copy of each specification or standard referred to is on file in the Engineer's office. However, it is assumed that a qualified Contractor experienced in the type of Work involved will have access to the specifications or standards referred to.

01 43 00 QUALITY ASSURANCE

- A. Contractor shall provide quality assurance for proactive activities to assure the quality of construction before and during the execution of the Work. These assurances may require field services provided by manufacturer's representatives. Quality assurance by the Engineer shall supplement that of the Contractor.
- B. Contractor shall comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Contractor shall perform Work by persons qualified to produce workmanship of specified quality.
- D. Inspection by Owner/Engineer
 - 1. The Engineer and its representatives shall always have access to the Work. In addition, authorized representatives, and agents of any participating federal or state agency, shall be permitted to inspect all Work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The Contractor shall provide proper facilities for such access and observation of the Work and for any inspection or testing thereof.
 - 2. The Owner and Engineer shall provide inspection of the Project up to the Final Completion date determined in the Notice to Proceed at no additional cost to the Contractor. Should the Contractor exceed such date, the Contractor shall reimburse the Owner for the cost of the inspection of Work performed after said date at the rate for liquidated damages shown in the Agreement and, if applicable, the rate per inspection Crew Day.
 - 3. If any Work is covered without prior inspection or contrary to the instructions of the Engineer, it must, if requested by the Engineer, be uncovered for its observation, and replaced at the Contractor's expense.
 - 4. Construction and related operations generally requiring full time inspection by the Engineer are generally defined as, but not limited to, the following
 - a. Checking for required permits.
 - b. Inspecting the plant operations of manufacturers, including batch plants, and/or Suppliers of materials to be incorporated in the Work.
 - c. Checking for certification and Engineer approval of all materials and equipment (including compliance with approved Shop Drawings) delivered to the job site.
 - d. Attending preconstruction meeting and construction progress meetings.
 - e. Reviewing Contractor's payment requests.
 - f. Reviewing Field Orders and Change Orders.
 - g. Witnessing all final inspection of Work.
 - h. Inspecting restoration of conditions existing prior to construction, including drives, sidewalks, fences, landscaping, cleanup, etc.

- i. Assisting with resolution of construction complaints, including the viewing of audiovisual record of construction area.
 - j. Preparing Punch Lists.
 - k. Changing plans to as-built conditions.
 - l. Inspecting the construction of appurtenances – such Work can be observed by the same individual performing the inspection for the primary construction (main or tunneling, etc.) provided that:
 - 1) They are located within 1,000 feet of the primary construction,
 - 2) The Contractor cooperates to the extent that the inspector is informed of the construction of appurtenances,
 - 3) No Work is covered prior to inspection.
 - m. Restoring conditions to that which existed prior to construction including but not limited to
 - 1) Drives
 - 2) Sidewalks
 - 3) Fences
 - 4) Landscaping
 - 5) Final cleanup
- E. Inspection by Permit Agencies
- 1. Parts of the Work requiring special permits from agencies such as road commissions, drain commissions, railroads, and other local, state, and federal agencies may be performed by that agency.
 - 2. The cost of inspection of special permit work by agencies other than the Owner shall be at the Contractor's expense.

01 43 13 MANUFACTURER QUALIFICATIONS

- A. When specified on the Contract Drawings, product or material manufacturers shall provide qualified personnel to observe site conditions, product installation, quality of workmanship, startup of equipment, test, adjust, and balance of equipment, and to initiate instructions when necessary. Submit qualifications of the observer to Engineer 30 days in advance of required observations. Observer subject to approval of Engineer.
- B. Observer shall report observations and site decisions, or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report in duplicate within 30 days of observation to Engineer for review.

01 43 16 SUPPLIER QUALIFICATIONS

- A. The provisions for manufacturers under Section 01 43 13 also apply to suppliers.

01 43 19 FABRICATOR QUALIFICATIONS

- A. The provisions for manufacturers under Section 01 43 13 also apply to fabricators.

01 43 23 INSTALLER QUALIFICATIONS

- A. The provisions for manufacturers under Section 01 43 13 also apply to installers.

01 43 36 FIELD SAMPLES

- A. The Contractor shall furnish to the Engineer at its office and for its approval when requested, samples of all materials and finishes to be used in the execution of the Work

herein described. All materials furnished and finishes applied shall be fully equal to the approved samples.

01 44 00 RESERVED FOR FUTURE**01 45 00 QUALITY CONTROL**

- A. Contractor shall provide quality control for reactive activities to evaluate completed activities and elements for conformance with the Contract Documents. These controls shall also include any needed correction of the defective construction. Quality control by the Engineer shall supplement that of the Contractor.

01 45 16 FIELD QUALITY CONTROL PROCEDURES

- A. If required, the method of soil compaction shall be in accordance with Dry Density and Moisture Density relationships as determined by ASTM D1557 and AASHTO T-180. Density in place shall be in accordance with ASTM D2922 (Nuclear) or ASTM D2167 (Rubber Balloon).

01 45 16.13 CONTRACTOR QUALITY CONTROL

- A. Contractor shall ensure that the quality of installed products is acceptable while performing the Work.

01 45 29 TESTING LABORATORY SERVICES

- A. All materials and equipment used in the construction of the Project shall be subject to inspection and testing in accordance with generally accepted standards, as required and defined in the Contract Documents. Material tests and inspection may be made by the Engineer or its authorized representative during manufacture and/or upon delivery. All material rejected after delivery shall be removed from the job site within 5 days after notification of rejection. The Contractor shall pay all costs for such removal and replacement with acceptable material, including all handling, loading, and transportation charges.
- B. The Owner will provide, at its expense, the testing services required by the Contract Documents unless indicated otherwise in these documents. The Contractor shall pay for all re-testing should the initial testing not pass.
- C. The independent testing laboratory will perform inspections, tests, and other services specified in individual specification Sections and as required by the Engineer.
- D. Reports will be submitted by the independent testing laboratory to the Engineer, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- E. Cooperate with independent testing laboratory; furnish samples of materials, design mix, equipment, tools, storage, and assistance as requested.
- F. Notify Engineer and independent testing laboratory 48 hours prior to expected time for operations requiring services.
- G. Coordinate with independent testing laboratory and pay for additional samples and tests required for Contractor's use.
- H. Retesting required because of non-conformance to specified requirements shall be performed by the same independent testing laboratory on instructions by the Engineer.
- I. If the Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Owner, the Contractor will give the Engineer timely notice of readiness. The Contractor shall then furnish the Engineer the required certificates of inspection, testing, or approval.
- J. Inspections, tests, or approvals by the Engineer or others shall not relieve the Contractor from its obligations to perform the Work in accordance with the requirements of the Contract Documents.

- K. Approval of any material or equipment shall be only for the characteristics of uses named in such approval and shall not constitute a change or modification of the Contract or a waiver of the Owner's right to demand full compliance with the Drawings and Specifications.
- L. When materials or equipment have been approved, no change or substitution will be permitted.

01 46 00 RESERVED FOR FUTURE

01 47 00 RESERVED FOR FUTURE

01 48 00 RESERVED FOR FUTURE

01 49 00 RESERVED FOR FUTURE

END OF SECTION

01 50 00 TEMPORARY FACILITIES AND CONTROLS

- A. The purpose of Section 01 50 00 Temporary Facilities and Controls is to detail the requirements for installation, maintenance, and removal of temporary utilities, controls, facilities, and construction aids during construction.

01 51 00 TEMPORARY UTILITIES

- A. Contractor shall make its own arrangements for temporary electricity, gas, water, and sewer services for use during the construction of the Work and shall pay for all connections, extensions, and services.
- B. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watts per square foot. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- C. Provide and pay for heat devices and heat as required to maintain specified conditions for construction operations.
- D. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or glass.
- E. Provide, maintain, and pay for suitable quality water service required. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.
- F. See Section 01 18 00 Project Utility Sources.

01 52 00 CONSTRUCTION FACILITIES**01 52 13 FIELD OFFICES AND SHEDS**

- A. At its discretion, the Contractor shall provide and maintain, at its own expense, a field office on the site of the Project providing electric lights, necessary heat, and a telephone
- B. Contractor shall provide three chairs, an Engineer's table and stool, and a rack for storing plans. The office shall be provided with a lock.
- C. The field office shall not be removed by the Contractor until the completion of the Work, at which time it shall become the property of the Contractor.
- D. Cost of telephone service including reasonable toll calls in connection with the Project shall be borne by the Contractor.

01 52 16 FIRST AID FACILITIES

- A. Contractor shall always provide a satisfactory first aid kit at the job site. Emergency phone numbers for police, doctors, and emergency vehicles shall also be kept in the first aid kit.
- B. First Aid kit shall be kept organized and accessible and contain the essential supplies to treat the most common injuries (cuts, scrapes, swelling, sprains, strains, etc.). All contents shall be latex-free and contain a first aid guide.
- C. Supply shall be restocked as needed.

01 52 19 SANITARY FACILITIES

- A. Contractor shall provide necessary sanitary convenience in the form of on-site toilet facilities for the use of its employees, as well as the Engineer and Owner.
- B. Facilities shall be properly secluded from public observation, shall be maintained in sanitary condition by the Contractor, and their use shall be strictly enforced.
- C. Contractor shall prohibit the committing of a nuisance within the Work or upon lands about the Work. Any employee found violating these provisions shall be discharged and not again employed without the written consent of the Engineer.

- D. Contractor shall furnish a convenient supply of soap and fresh drinking water from a safe source. Facilities shall be maintained in a sanitary condition, frequently cleaned, disinfected, and in compliance with all minimum requirements of the Health Department or other public agency having jurisdiction.
- E. Any contaminated soil or material shall be removed and replaced with fresh, clean soil, and the site left in a clean, sanitary condition.

01 53 00 TEMPORARY CONSTRUCTION

- A. Dewatering and Maintenance of Drainage
 - 1. Provide adequate dewatering facilities for removal and disposal of water from drains, sewers, trenches, or other excavations which may interfere with the execution of the Work. Provide for dewatering bulkhead sewer sections as required by the Engineer.
 - 2. Should the ground in the working area contain an excessive amount of water to prevent proper construction of the Work, notify the Engineer and request a meeting between the Owner, Contractor, and Engineer. After a review of all current soil borings, groundwater data and observations, submit to the Engineer, a complete dewatering program, including the total cost. The Engineer will complete its review and make a recommendation, in writing, within 5 days. If accepted, a Change Order will be issued to cover the dewatering costs.
 - 3. Dewatering is defined as requiring the use of deep wells and/or well points. Use of a trench box and/or pumping from the trench is considered normal construction and is incidental to unit prices bid.
 - 4. Execute the dewatering so there is no damage or interference with public or private property.
 - 5. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
 - 6. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
 - 7. To protect against flotation of below grade structures, notify Engineer before terminating dewatering operations.

01 54 00 CONSTRUCTION AIDS

- A. Bulkheads shall be built or removed at locations shown on the Drawings. Other complete or partial restrictions or temporary dams may be built as an aid to the construction operations when approved as to location, type, and size by the Engineer. Such bulkheads or dams shall be removed prior to the completion of the Work, or when directed by the Engineer.
- B. A brick bulkhead, with the natural soil removed, is not designed to withstand air pressures. If air is being used in a tunnel approaching an existing brick bulkhead, the pressure shall be reduced or entirely removed. If air pressure is being used in the tunnel or in the adjacent section, then a reinforced concrete bulkhead, designed to withstand 25 psi air pressure or as specified by the Engineer, shall be constructed in place of a brick bulkhead.
- C. The cost associated with the construction of restrictions shall be included in the cost of the Project unless otherwise specified in the Bid Form.
- D. Should the Contractor desire to place or remove any restrictions (such as bulkheads, curtain walls, dams, sandbags, or flumes) or to leave temporary openings in any sewer wall, approval shall first be obtained from the Engineer. Any temporary obstruction so placed shall be promptly removed when no longer needed. Any temporary opening made in an existing sewer structure shall, likewise, be promptly closed when no longer

needed. Such closure shall be made as approved by the Engineer to provide structural and hydraulic conditions equivalent to those originally existing.

- E. Should flooding or damage to construction Work result from storm conditions, the Contractor will not be entitled to any extra compensation for such loss as it may sustain, or for the extra Work that may result there from.

01 55 00 VEHICULAR ACCESS AND PARKING

01 55 16 HAUL ROUTES

- A. Contractor shall work with the appropriate government agencies in determining truck routes and shall have such routes approved by same before the routes can be used.
- B. Contractor shall note the condition of the streets and notify the Owner and said government agencies in writing, where deficiencies are present. It shall thereafter be the responsibility of the Contractor to maintain the truck routes for the period such routes are used by the Contractor.
- C. Contractor shall keep clean all streets used in its operations. Trucks hauling excavated materials, cement, sand, stone, or other loose materials from or to the site, shall be tight so that no spilling will occur. Before trucks start away from the site, their loads shall be carefully trimmed to prevent spillage.
- D. The above requirements likewise apply to subcontractors, suppliers, and the like making deliveries to the site, and the Contractor will be held responsible for compliance by its suppliers.

01 55 19 TEMPORARY PARKING AREAS

- A. The Contractor shall maintain temporary surfacing of parking areas disturbed during construction in a satisfactory and usable condition until completion and acceptance of final restoration of such surfacing.

01 55 23 TEMPORARY ROADS

- A. The Contractor shall, where necessary, furnish and install 21AA aggregate maintenance gravel to maintain access to local resident drives and temporary access roads. It shall also maintain temporary streets, alleys and sidewalks disturbed during construction in a satisfactory and usable condition until completion and acceptance of final restoration of such surfacing. Unless indicated on the Bid Form, the cost of this Work is included in the cost of the Project.
- B. Temporary access roads and drives shall serve as access for local public or private use or as access to the construction site both for the Contractor's equipment and for the delivery or removal of materials.
- C. The temporary access roads and drives shall be removed by the Contractor when directed by the Engineer. The areas shall be restored as near the condition found as is practical and shall be compatible with the adjacent undisturbed areas.
- D. The Contractor shall also maintain temporary surfacing of drives, streets, alleys, and sidewalks disturbed during construction in a satisfactory and usable condition until completion and acceptance of final restoration of such surfacing.

01 55 26 TRAFFIC CONTROL

- A. All Work shall be carried on in a neat and satisfactory manner, and interference with the normal flow of traffic shall be kept to a minimum. Driveways and streets disturbed shall be maintained for public or private use until such time as the permanent repair is complete.
- B. The Contractor shall maintain reasonable access to all residences and businesses.
- C. No street may be closed or partially barricaded without prior permission from the authority having jurisdiction. Such permission shall be in writing, and a copy thereof shall be delivered to the Owner prior to the closing or barricading of any street. If such permission is granted, the Contractor shall notify the local police and fire departments,

the local Board of Education, and any local private schools, erect "Street Closed" signs, and designate a suitable detour.

- D. Safety precautions shall be observed at all times. The Contractor shall maintain traffic control devices and provide and maintain proper lights and barricades. In addition, if required by the authority having jurisdiction, the Contractor shall provide flagmen for the directing of traffic.
- E. During the progress of the Work, the Contractor shall accommodate vehicular and foot traffic, except as otherwise specified herein, and shall provide access to fire hydrants and to water and gas valves.
- F. The Contractor shall furnish, erect, maintain and remove all traffic control devices, including lights, required to protect the construction area and the public.
- G. All traffic control measures shall be in full accordance with the latest edition of the MMUTCD.
- H. Detour signs and arrow boards shall be placed, as field required, to direct traffic around areas of construction. Work activities on major streets will require proper lane closures, per the MMUTCD.
- I. All lights, signs, barricades, drums, grabber cones and other protective devices shall be installed and maintained in conformity with applicable statutory requirements and, where within highway rights-of-way, as required by the authority having jurisdiction thereover.
- J. Facilities shall be provided along the route adjacent to the Work in progress as necessary to maintain both local pedestrian and vehicular traffic that is dependent solely upon such route for access to adjacent property. Closing of any street to through traffic, even if just temporary, may be done, if at all, only as specifically authorized by the governing agencies. Unobstructed access to fire hydrants and water and gas valves shall always be provided.
- K. Where any street is to be partially blocked, temporary roadways, sidewalks, bridges, crossings, barricades, lights, signs, and the like shall be provided and maintained as the Engineer considers necessary to accommodate and protect the public. Should the Contractor fail to promptly provide or neglect to maintain the required temporary facilities or be dilatory in carrying out specific instructions of the Engineer, those having authority may, with or without notice to the Contractor, take such remedial measures deemed necessary and charge the Contractor with any costs incurred therefor. Any such action, however, shall in no way serve to release the Contractor from its general or particular liability for the safety of the traveling public or the protection of property.
- L. Where street obstruction is authorized, the Contractor shall inform the Fire Department in advance of such obstruction, so that plans may be prepared for servicing the area. The Contractor shall, likewise, notify the authorities having jurisdiction over the streets and roads at least 1 week prior to the contemplated obstruction so that regulatory traffic controls may be arranged.
- M. In the event the Contractor is authorized to close the road to all traffic, it will be the responsibility of the Contractor to notify the local police department, the governing agency, local fire department, local school board, and residents on the road affected by the road closure. Furthermore, it will be the Contractor's responsibility to provide any temporary facilities required by the local governing authorities due to the temporary closing of the road, and to obtain permits prior to closing any road.
- N. Contractor shall always maintain one lane of traffic on all segments of the Project.
- O. Any flag control necessary to maintain traffic shall be considered incidental to the Project.
- P. If the Contractor does not provide an adequate number of barricades to protect the public, the Owner with or without notice, will provide and/or install barricades and deduct a reasonable fee from the Contract for material and service rendered above.

- Q. All traffic signs or traffic lights disturbed or damaged during the construction of the Project shall be replaced in their original condition. Any traffic sign or light temporarily disturbed or removed during construction shall be replaced with temporary signs or flagmen during construction in the immediate area and then permanently replaced immediately after construction in that area is essentially finished. The cost of this replacement shall be included in the cost of the Project and no separate payment will be made therefore.
- R. Contractor shall furnish Engineer with the name and telephone number of the barricading company. In case of emergency, the barricading company will install signs or barricades as directed by the Engineer or Owner, at no cost to the Owner.

01 55 29 STAGING AREAS

- A. The Contractor will be allowed to stockpile material and equipment within the existing rights-of-way and construction limits as shown on the Contract Drawings as necessary for the Work, but in no case shall the Contractor obstruct traveled road, drives, or entrances (whether for parking, storage of material, etc.) without the approval of the Engineer. Driveways and entrances serving the premises shall be clear and available to Owner, Owner's employees, and private property Owners at all times
- B. Contractor shall schedule deliveries to minimize space and time requirements for storage of materials and equipment on Site. Areas for Contractor's trailers, equipment, and material storage, and Contractor's employee parking shall be as indicated on Drawings or agreed by Owner prior to the start of construction.
- C. The Contractor may, at its own expense, obtain space on private property for storage of equipment and material with the written permission of the property owner.
- D. At all times, keep the working and storage area as neat and orderly as possible. The Engineer will have the right to require any equipment or material to be moved or arranged in a manner deemed necessary for public convenience, safety, or elimination of a nuisance.
- E. The Contractor shall be held responsible for all materials until incorporated into the Work and accepted. It shall be held responsible for, and repair, any damage done by reason of the storage of tools, equipment, and materials.

01 56 00 TEMPORARY BARRIERS AND ENCLOSURES

- A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage due to construction operations and demolition.
- B. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

01 56 16 TEMPORARY DUST BARRIERS

- A. All haul roads, detour roads, public roads, private roads, driveways, and parking lots used by the Contractor must be maintained in a dust free condition during the life of this Contract.
- B. Control of the dust shall be accomplished by the application of dust control materials and methods of application which are in accordance with the requirements of the agency having jurisdiction over the roadway or driveway.
- C. Such dust control materials shall be applied as often as is necessary to control the dust.
- D. Roads shall be swept at least daily.
- E. The use of road oils and waste oils to control dust is prohibited.
- F. Should the Contractor be negligent of its duties in providing dust control, the Owner may take the necessary steps to perform such Work and will charge the Contractor for all costs.

01 56 26 TEMPORARY FENCING

- A. As directed by the Engineer, the Contractor shall furnish, erect, and maintain any temporary construction fencing required during the performance of the Work.
- B. Temporary fences shall consist of properly installed and braced snow fence with a minimum height of 4 feet.
- C. Temporary fences shall be installed and removed at no additional cost to Owner.
- D. Locate temporary fencing at a sufficient distance from the work area and equipment so that construction activities may proceed without removing any fencing.
- E. Temporary fencing shall remain in place until the Work is complete and the site is secure.
- F. Remove temporary fencing and restore surroundings to original condition.
- G. Temporary fencing for work area may need to be installed and removed depending on phasing of Project. This Work shall be completed at no additional cost to Owner.

01 56 39 TEMPORARY TREE AND PLANT PROTECTION

- A. The Contractor shall protect and preserve all trees and other plants encountered during the Work by provide temporary fencing, barricades or guards unless the Drawings specifically indicate the necessity for their removal. Trees which are to remain and must be protected are tagged and indicated on the Drawings.
- B. Trim and protect trees which are indicated to remain but interfere with or are in close proximity to new construction, as herein specified. A qualified arborist shall remove branches from trees which are to remain and shall recommend procedures to compensate for loss of roots (if any). Tree surgeon shall perform initial pruning of branches using a Waterproof, antiseptic, elastic that is free of kerosene, coal tar, creosote and other substances harmful to plants.
- C. Wherever necessary for the preservation of trees, the Engineer shall have the right to direct the Contractor to tunnel under such trees. When called for on the Drawings, the Contractor shall remove the trees completely, including the stump, and the main roots.
- D. The Contractor shall be responsible for the damage or destruction of property of any character resulting from neglect, misconduct, or non-execution of the Work, or caused by defective work or the use of unsatisfactory materials.
- E. A qualified arborist shall certify that trees indicated to remain have been protected during construction in accordance with recognized standards of the industry as well as that, where damage did occur, trees were promptly and properly treated. Indicate which damaged trees (if any) are incapable of retaining full growth potential and are recommended to be replaced.
- F. Protection of trees shall be incidental to the construction of the Work unless a separate item for this purpose is listed on the Bid Form. In wooded areas, trees shall not be removed unless marked for removal. The Engineer shall be notified by the Contractor when it intends to be on-site for clearing areas marked for removal. All trees, stumps, brush, etc., removed because of the Contractor's construction shall be removed off-site.
- G. The Contractor shall not injure or destroy trees, shrubs, flowers, or lawns nor remove or cut them without authorization by the Owner. All trees, shrubs, flowers, or lawns except those ordered to be removed shall be adequately protected by boxes/protection fence or otherwise by the Contractor. No excavated material shall be placed so as to injure such trees, shrubs, flowers, or lawns. Trees, shrubs, flowers, or lawns destroyed by negligence of the Contractor or its employees shall be replaced by Contractor with new stock, or with other stock satisfactory to the Owner, at the proper season, and at the sole expense of the Contractor.
- H. Root Protection

1. Do not store construction materials, debris or excavated material within drip line (outer perimeter of branches). Do not permit vehicles within drip line. Restrict foot traffic to prevent excessive compaction of soil over root systems.
 2. Protect tree root systems from damage due to noxious materials in solution caused by run-off or spillage during mixing and placement of construction materials, or drainage from stored materials.
 3. Protect root systems from flooding, erosion or excessive wetting resulting from dewatering operations.
 4. Do not allow fires under or adjacent to trees or other plants which are to remain.
 5. Remove branches from trees which are to remain, if required, to clear new construction.
 6. Where directed by Owners Representative, extend pruning operation to restore natural shape to the entire tree.
 7. Cut branches and roots, if required, with sharp pruning instruments; do not break or chop.
 8. Paint cuts over one-half inch in size with tree pruning compound.
- I. Excavation Around Trees
1. Excavate within drip line of trees only where indicated.
 2. Where trenching for utilities is required within drip line, tunnel under or around roots by hand digging. Do not cut main lateral roots or tap roots; cut smaller roots which interfere with installation of new Work. Cut roots with sharp pruning instruments; do not break or chop.
 3. Where excavating for new construction is required within drip line of trees, hand excavate to minimize damage to root systems.
 4. Provide sheeting at excavations if required. Use narrow tine spading forks and comb soil to expose roots.
 5. Relocate roots in backfill areas wherever possible. If large, main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking. If encountered immediately adjacent to location of new construction and relocation is not practical, cut roots approximately three (3") inch back from new construction.
 6. Do not allow exposed roots to dry out before permanent backfill is placed; provide temporary earth cover, or pack with peat moss and wrap with burlap. Water and maintain in moist condition and temporarily support and protect from damage until permanently relocated and covered with earth.
 7. Prune branches to balance loss to root system caused by damage or cutting of root system.
- J. Grading and Filling Around Trees
1. Maintain existing grade within drip line of trees, unless otherwise indicated.
 2. Lowering Grades
 - a. Where existing grade is above new finish grade shown around trees, carefully hand excavate within drip line to new finish grade. Cut roots exposed by excavation or provide permanent protections as recommended by arborist
 - b. Compensate for loss of roots and prune branches to stimulate root growth.

3. Provide subsequent maintenance during the Contract period as recommended by arborist.
 4. Provide Owner with typed instructions for recommended long-range maintenance procedures following completion of construction operations.
 5. Raising Grades
 - a. Minor Fills: Where existing grade is 6 inches or less below elevation of finish grade shown, use a topsoil fill material. Place in single layer and do not compact; hand grade to required finish elevations.
 - b. Moderate Fills: Where existing grade is more than 6 inches, but less than 12 inches, below finish grade elevation, place a layer of drainage fill on existing grade prior to placing topsoil. Carefully place against trunk of tree approximately 2 inches above finish grade elevation and extend not less than 18 inches from tree trunk on all sides. For balance of area within drip line perimeter, place drainage fill to an elevation 6 inches below grade and complete fill with a layer of topsoil to finish grade elevation. Do not compact stone, gravel, or topsoil layers; hand grade to required elevations.
- K. Repair and Replacement of Trees
1. Repair trees damaged by construction operations, in manner acceptable to Owner's Representative. Make repairs promptly after damage occurs to prevent progressive deterioration of damaged trees.
 2. Remove and replace dead and damaged trees which are determined by arborist to be incapable of restoration to normal growth pattern.
 - a. If trees over 6 inches in caliper measurement (taken 12 inches above grade) are required to be replaced, provide new trees of 6 inches caliper size, and of the species selected by the Owner's Representative.
 3. Remove all tree stumps and dispose of off Owner's property. Tree stumps may not be burned on-site.

01 57 00 TEMPORARY CONTROLS

- A. The Contractor shall assume full responsibility for the protection of all buildings, utilities, or other structures and their foundations, as well as other improvements, such as pavement, etc., that might be encountered during, or affected by, its operations.
- B. Should settlement or lateral movement of adjacent structures or surface features occur, such conditions shall be rectified at the Contractor's expense. If damage to any structures, utilities, or other improvements occurs by reason of the Contractor's operations, even though special precautions have been employed, the Contractor shall be entirely responsible for such damage.
- C. All fences, mailboxes, and other physical features within the work area under this Contract shall be maintained and, if damaged, repaired or replaced in a workmanlike manner with materials satisfactory to the property owner affected and the Engineer, and approved by the local postmaster.
- D. If temporary mailboxes are needed, the Contractor shall construct these boxes in a manner satisfactory to the property owner affected and the Engineer, and approved by the local postmaster, at no additional cost to the Owner.
- E. Contractor shall maintain access to the work area for garbage pickup, bus service, and mail service if applicable. If access is not possible, the Contractor shall, prior to closure of site, coordinate with the appropriate service to provide alternate routes or alternate methods of service to residents/owners at its own expense and at no additional cost to the Project.

01 57 13 TEMPORARY EROSION AND SEDIMENT CONTROL

- A. All erosion and sedimentation control Work shall conform to the current standards and specifications of agency having jurisdiction. This Project shall be constructed in compliance with Part 91 of Act 451 of 1994, as amended.
- B. Any erosion and sedimentation from Work on this site shall be contained within the work area and not allowed to collect on any off-site areas or in waterways. Waterways include both natural and man-made open ditches, streams, storm drains, lakes, ponds, and wetlands.
- C. The Contractor shall apply temporary erosion and sedimentation control measures as directed on these plans and whenever otherwise required by the Work. The Contractor shall remove temporary measures as soon as permanent stabilization of slopes, ditches, and other changes have been accomplished.
- D. Soil erosion control practices will be established in early stages of construction by the Contractor. Sedimentation control practices will be applied as a perimeter defense against any transporting of dirt out of the work area.
- E. The Contractor shall be responsible for ensuring compliance with all applicable NPDES regulations, including inspection, restoration, and record-keeping requirements.
- F. Sediment Control Fencing
 - 1. Sediment control fencing shall be inspected immediately after each rainfall and several times during prolonged storm events.
 - 2. If the fence is sagging, or soil has reached one half of the height of the fabric, the soil behind the fabric shall be removed and disposed of in a stable area of the site.
 - 3. If water is seeping under the fence, or the fabric is decomposed or otherwise ineffective, the fence shall be removed and properly reinstalled as indicated on the plans.
 - 4. Sediment control fencing indicated on this plan is not intended to show the exact location of the fence. The Contractor shall be responsible for the installation and maintenance required to contain sediment.
- G. Mud Mats
 - 1. Mud mat entrances shall be inspected immediately after each storm rainfall. The surrounding roads shall also be inspected at this time for evidence that mud is being tracked off the site.
 - 2. Maintenance shall include the installation of additional layers of stone when the original stone becomes covered with mud.
 - 3. All sediment dropped or tracked onto public rights-of-way shall be removed immediately by sweeping and scraping (as may be required by the Engineer).
- H. Sediment Inlet Filters
 - 1. Sediment inlet filters shall be inspected immediately after each rainfall and several times during prolonged storm events.
 - 2. The filters shall be cleaned periodically throughout construction to avoid clogging. Filters that cannot be maintained by cleaning shall be replaced.
- I. Construction activities, including installation of pipe and associated valves, structures, back filling, surface restoration, and removal of excess excavated material, shall be accomplished in one continuous operation.
- J. All dewatering shall be accomplished in a manner that will not contribute to deposition of sediment in road ditches or open water.
- K. Erosion Control Sequence

1. Install mud mats, silt fence, and inlet filters at all existing locations as shown and as required to achieve on-site containment.
2. Install storm sewer and all associated storm water improvements as shown on the Construction Drawings. Immediately install inlet filters at all catch basins.
3. Rough grade the Project work area as needed.
4. Install sanitary sewer as shown on the Construction Drawings.
5. Install water main as shown on the Construction Drawings.
6. Install other utilities (gas, electric, phone, cable, etc.) And/or all needed conduits and sleeves.
7. Install pavement backfill and seed and mulch all disturbed areas.
8. Clear all accumulated silt and remove all erosion control devices.
9. Install landscaping materials as indicated on the Construction Drawings and re-seed, fertilize, and mulch all disturbed areas.

L. Erosion and Sediment Control Maintenance

1. The Contractor is responsible for on-going maintenance of all soil erosion controls as indicated by the plans.
2. The Contractor shall sweep the existing streets surrounding the Project site once a week, or as directed by the Engineer or inspector. Street scraping shall be performed in conjunction with this sweeping on an as needed basis.
3. Sediment control fencing indicated on this plan is not intended to show the exact location of the fence. The Contractor shall be responsible for the installation and maintenance required to contain sediment.
4. Any erosion or washouts of topsoil, seed, or mulch which occurs during or after construction due to rain events or flooding shall be re-worked and restored by the Contractor at its expense until permanent stabilization is established and the project has been accepted by the Owner.
5. If for any reason permanent stabilization cannot be provided within 15 days of the completion of any pipe laying operations, temporary stabilization shall be provided at all disturbed areas. Temporary stabilization shall furthermore be provided during the non-growing season (October 1 through April 20) for all areas to be seeded.
6. Temporary stabilization shall consist of either small grain straw or grass hay spread at the rate of 1.5 to 2 tons per acre, or mulch blankets, which shall be anchored in place to prevent displacement from wind and rain. Temporary stabilization shall be repaired as often as necessary, as determined by the agency with jurisdiction.

M. Plants

1. The Contractor shall preserve natural vegetation as much as possible.
2. Protect all existing trees, including their branches and roots, from damage due to this Work unless specifically identified for removal.
3. Vegetation stabilization of all disturbed areas shall be established within 15 days of completion of final grading.
4. Pavement and/or vegetation shall not be stripped from an area unless construction activities are to commence in that area within the next three days.

- N. Should a dedicated soil erosion and sedimentation control plan not be part of the Contract Documents, it is still the responsibility of the Contractor to meet all local and state ordinances. A regular inspection program and a thorough maintenance program

shall be developed and implemented by the Contractor to insure the effectiveness of the erosion and sedimentation control practices.

01 57 23 TEMPORARY STORM WATER POLLUTION CONTROL

- A. The Contractor shall maintain in continuous and effective service all drains, sewers, and water courses encountered or interfered with during the progress of the Work.
- B. If it becomes necessary to temporarily divert or obstruct the flow of any such water course, sewer, or drain, written consent must first be obtained from the Owner and Engineer, and then the Contractor shall assume full responsibility for any damages incurred therefrom.
- C. Adequate pumping and drainage facilities shall be provided, and all water from whatever sources entering the Work during any stage of construction shall be promptly removed and disposed of. All pumping and drainage shall be done without damage to property or structures and without interference with the rights of the public, owners of private property, pedestrians, vehicular traffic, or the Work of other Contractors. Dewatering shall be done in such a manner that the soil under or adjacent to existing structures shall not be disturbed, removed, or displaced.
- D. The overloading or obstructing of existing drainage facilities will not be permitted and the Contractor shall be solely responsible for damage caused by its operations.
- E. Both dry weather sewage flow and storm flows in all existing sewers, ditches, streams, rivers, and drains, which may in any way be affected by the new construction, shall be adequately maintained by Contractor. Such methods shall be used in maintaining flows as will prevent raising the levels of the sewage in upstream sewers to the extent to cause basement flooding or other damage. All gutters, ditches, catch basins, and other surface water inlets and drains shall be kept clear for proper surface drainage. Surface water inlets and drains that interfere with the Contractor's operations shall be temporarily altered or relocated by the Contractor as approved by the Engineer.
- F. The Contractor shall take all necessary precautions to ensure that no raw sewage is bypassed to a receiving stream as a result of its operations.
- G. All alterations, relocation, or use of any existing facilities shall be approved by the proper governing agency and shall be restored to the original location, and to as good a condition as found; all as approved by the governing agency.

01 58 00 PROJECT IDENTIFICATION**01 58 13 TEMPORARY PROJECT SIGNAGE**

- A. When shown on the Contract Drawings, the Contractor shall provide and erect (and maintain in good condition throughout the life of the Project) a Project sign in a location selected by the Engineer.
- B. The sign shall be constructed of ¾" exterior plywood (or similar material), 4' x 8' in size, with white lettering on a green background.
- C. The sign shall be mounted on suitable supports and positioned with its lower edge a minimum of 2' above ground level. The information to be shown on the sign, and the format to be used, will be provided by the Owner after award of Contract.

01 59 00 RESERVED FOR FUTURE

END OF SECTION

01 60 00 PRODUCT REQUIREMENTS

- A. The purpose of Section 01 60 00 Product Requirements is to detail administrative and procedural requirements for the selection of products, product delivery, product storage, product handling, manufacturers' standard warranties on products, special warranties, product substitutions, and comparable products.
- B. See Section 01 25 00 Substitution Procedures for product substitution procedures.
- C. See Section 01 33 23 Shop Drawings, Product Data, and Samples for product submittal procedures.
- D. Products are defined as items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named products are defined as items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New products are defined as items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable products are defined items as that are demonstrated and approved through the submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
 - 4. Basis-of-design products are defined as items in which a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers. Product specifications are provided by the manufacturers.
- E. Contractor shall prevent damage, deterioration, and loss, including theft, and shall comply with manufacturer's written instructions.

01 61 00 COMMON PRODUCT REQUIREMENTS

- A. Comply fully with manufacturers' instructions including each step-in sequence. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- B. Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
- C. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
- D. Provide standard products of types that have been produced and used successfully in similar situations on other projects unless custom products or nonstandard options are specified.
- E. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
- F. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

01 62 00 PRODUCT OPTIONS

- A. The product selection procedure shall depend on the product(s), manufacturer(s), source(s), and/or sample(s) named on Drawings and Divisions 02-49 Specifications.
1. Single Product and Manufacturer
 - a. Provide the named product that complies with requirements.
 - b. Should the Contract Documents indicate sizes, profiles, and dimensional requirements based on a specific product or system, provide the specified product or system.
 - c. Where Contract Documents name a Basis-of-Design product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.
 2. Single Manufacturer or Source: Provide a product by the named manufacturer or source that complies with requirements.
 3. List of Names of Both Products and Manufacturers: Provide one of the products listed that complies with requirements or, if none are available, an unnamed product and/or manufacturer
 4. List of Manufacturers: Provide a product by one of the manufacturers listed that complies with requirements.
 5. Visual Matching Specification: Select a product that complies with requirements and matches Engineer's sample.
 6. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Engineer will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.
- B. For products specified only by reference standards, Contractor shall provide manufacturer, trade name, model or catalog designation and reference standards.
- C. Compatibility of options shall be strictly adhered to by the Contractor. If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

01 63 00 RESERVED FOR FUTURE**01 64 00 OWNER-FURNISHED PRODUCTS**

- A. The Owner, at its sole discretion, reserves the right to furnish certain products for the Project.

01 65 00 PRODUCT DELIVERY REQUIREMENTS

- A. Contractor shall schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
- B. Contractor shall coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

- C. Contractor shall deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- D. Contractor shall inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- E. Engineer shall inspect materials at the point of manufacture or upon delivery as the Engineer may decide.

01 66 00 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Contractor shall store products to allow for inspection and measurement of quantity or counting of unit. Contractor shall be responsible for locating a storage area, if desired, at no additional cost to the Owner. The Owner/Engineer will require a copy of all agreements made between Contractor and property owner prior to the onset of construction. Property must be properly zoned.
- B. Contractor shall store materials in a manner that will not endanger Project structure.
- C. Contractor shall store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
- D. Contractor shall store cementitious products and materials on elevated platforms.
- E. Contractor shall store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
- F. Contractor shall comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
- G. Contractor shall protect stored products from damage and liquids from freezing.
- H. Material improperly stored shall not be included in estimates for partial payment, or if already included, shall be deducted for subsequent estimates.
- I. Private property shall not be used for storage purposes without written permission of the Owner or renter.

01 67 00 RESERVED FOR FUTURE**01 68 00 RESERVED FOR FUTURE****01 69 00 RESERVED FOR FUTURE**

END OF SECTION

01 70 00 EXECUTION AND CLOSEOUT

- A. The purpose of Section 01 70 00 Execution and Closeout Requirements is to detail the general procedures and acceptable conditions for installation, execution, cleanliness, protection of installed construction, completion, and demonstration.

01 71 00 EXAMINATION AND PREPARATION**01 71 13 MOBILIZATION**

- A. Mobilization is the responsibility of the Contractor and shall include all machinery, tools, materials, equipment, transportation, and labor required to accomplish the Work specified herein.

01 72 00 RESERVED FOR FUTURE**01 73 00 EXECUTION****01 73 29 CUTTING AND PATCHING**

- A. The Contractor shall perform all cutting, fitting, or patching of its work that may be required to properly join parts and fit it to receive or be received by Work of other contractors shown upon, or reasonably implied by, the Contract Documents for the completed Work as the Engineer may direct. Cutting and patching may be necessary to
1. Fit the several parts together to integrate with other Work
 2. Uncover Work to install or correct ill-timed Work
 3. Remove and replace defective and non-conforming Work
 4. Remove samples of installed Work for testing
 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- B. Contractor shall employ skilled and experienced installers to perform cutting and patching.
- C. As specified in product Sections, Contractor shall match existing products and Work for patching and extending Work.
- D. Contractor shall remove, cut and patch Work in a manner to minimize damage and to provide a means of restoring products and finishes to specified condition. Openings in exterior surfaces shall be closed to protect existing Work from weather and extremes of temperature and humidity.
- E. Contractor shall submit written requests in advance of cutting or altering elements which affect
1. Structural integrity of element
 2. Integrity of weather-exposed or moisture-resistant elements
 3. Efficiency, maintenance, or safety of element
 4. Visual qualities of sight-exposed elements
- F. Work shall be executed by methods which will avoid damage to other Work and provide proper surfaces to receive patching and finishing. Refinish visible existing surfaces to remain in renovated rooms and spaces to specified condition for each material with a neat transition to adjacent finishes.
- G. Rigid materials shall be cut using masonry saw or core drill.
- H. Where new Work abuts or aligns with existing, Contractor shall perform a smooth and even transition. Patched Work shall match existing adjacent Work in texture and appearance.

1. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer.
 2. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Engineer review.
- I. Contractor shall fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
 - J. Contractor shall maintain integrity of wall, ceiling, or floor construction and completely seal voids.
 - K. Surfaces shall be refinished to match adjacent finishes. Continuous surfaces shall be refinished to the nearest intersection; for an assembly, the entire unit shall be refinished.
 - L. Contractor shall patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

01 74 00 CLEANING AND WASTE MANAGEMENT**01 74 13 PROGRESS CLEANING**

- A. Contractor shall keep work area and affected properties in a neat and orderly condition. Waste materials, rubbish, and debris shall not be allowed to accumulate. Contractor's equipment, temporary buildings, scaffolding and excess materials shall be promptly removed as they become no longer needed for the progress of the Work. At the completion of construction, the Work area shall be left raked clean.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum-clean interior areas prior to start of surface finishing, then continue cleaning to eliminate dust.
- D. Remove waste materials, debris, and rubbish from site periodically and dispose off-site.
- E. If, in the opinion of the Engineer, cleanliness of the Project is not progressing in a reasonable manner, it shall have the right to direct the Contractor to proceed with such Work, or any portion thereof, immediately. In the event the Contractor does not then immediately proceed with this Work, the Engineer may order any or all other operations of the Contractor, under this Contract, to cease until the cleanliness of the Project is proceeding in an acceptable manner.

01 74 16 SITE MAINTENANCE

- A. Material or equipment delivered on the streets shall be neatly and compactly placed along the sides of the roadway in such a manner to cause the least inconvenience to the property owners and to the public.
- B. The Contractor shall erect a material storage shed or sheds necessary as required for the proper storage of materials subject to damage by weathering.
- C. All haul roads, detour roads, gravel roads, and driveways must be maintained in a dust free condition during the life of this Contract. The control of the dust shall be accomplished by the application of dust control materials and methods of application which are in accordance with the requirements of the agency having jurisdiction over the roadway. Such dust control materials shall be applied as often as necessary to control the dust. The use of road oils and waste oil to control dust is not permitted.
- D. All excess trench excavation shall be uniformly spread out of the road right-of-way or removed off-site as directed by the Engineer.
- E. Maintenance and of road surfaces, structures and trench backfill shall be commenced and completed within a reasonable length of time after construction. If, in the opinion of the Engineer, Work has not progressed in a reasonable manner, Engineer shall have

the right to direct the Contractor to proceed with the Work or any portion thereof immediately. In the event that the Contractor does not proceed with the Work immediately, as directed by the Engineer, the Engineer may order any or all other operations of the Contractor under this Contract, to cease until the maintenance and restoration of road surfaces, structures and trench backfill is proceeding in an acceptable manner.

01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

- A. Excavated material, where suitable, shall be used in backfilling around drains and other structures. All materials in excess of the quantity required for backfilling and all materials unsuitable for backfilling shall be hauled away by the Contractor.
- B. It shall be the responsibility of the Contractor to obtain such spoil sites as may be required. The Contractor shall leave such spoil sites in a neat and generally level condition satisfactory to the Engineer.

01 74 23 FINAL CLEANING

- A. Upon reaching Substantial Completion and before final payment is made, Contractor shall proceed with final cleanup and restoration of the Project area disturbed (including spill areas). Contractor shall go over the entire area and refill any places that may have settled. It shall then regrade and put in shape all backfilled trenches, all fills it may have made from excess excavated materials, and all other areas that may have been disturbed through its operations.
- B. The Contractor shall be responsible for the restoration of any disturbed or damaged areas accessed during the performance of Work. All items, including but not limited to trees, plants, irrigation systems, lights, pavement, any other landscaping items, curbing, walks, paving, gravel, and street road surfaces shall be protected. Restoration shall be of material and quality to match or exceed existing. Paved areas shall be restored to the same cross-section. Damage to lawn areas shall be restored by fine grading and by placing 3" topsoil, seed, and mulch, or to previous condition, whichever is stricter.
- C. Final cleanup and restoration shall consist of final grading, placing of topsoil, seeding, and mulching, and/or sodding of all disturbed areas of the Project under the requirements of the 2020 MDOT Specification for Construction.
 - 1. Minimum seeding requirement shall be MDOT Turf Seed Mixture. Where the Contractor has disturbed lawn area, it shall provide not less than 3 inches of topsoil approved by the Engineer, grade, seed, and fertilize the area with not less than 5 pounds of seed and 10 pounds of fertilizer per 1000 square foot of area. Seed shall be. Seeding and fertilizer shall be done in an approved manner. Methods of application and covering must have prior approval by the Engineer.
 - 2. All seeded areas shall be immediately covered with mulch. Mulch shall be loose enough to allow sunlight to penetrate and air to circulate slowly, but thick enough to shade the ground, reduce the rate of evaporation and reduce wind or water erosion. The Contractor shall maintain the mulch until a root system is established.
 - 3. Mulch shall be straw or other organic material approved by the Engineer. The mulch shall be held in place by an adhesive material approved by the Engineer.
 - 4. The Contractor may restore area disturbed by its operations with sod instead of seed, with the approval of the Engineer. Sod shall be placed on a prepared bed of suitable soil. On slopes steeper than 1V:3H, the sod shall be pegged with wooden pegs or wire stakes driven flush with the surface of the sod. Sod placed by the Contractor shall match existing lawn and shall be watered immediately after placement and at least two times thereafter at 5-day intervals.

5. If any special landscaped area is disturbed, because of the operations of the Contractor, it shall be reasonably restored to its original condition by the Contractor. Seeding, as may be required by road permits, shall be done in accordance with requirement of governing body having jurisdiction.
 6. The Contractor shall re-work any areas where the sod or seed does not produce a satisfactory growth.
- D. Final cleanup and restoration shall further consist of replacement of concrete and asphalt pavement crossings. Where a special detail is not shown on the plans or specifications, and the governing authority has no jurisdiction over the restoration of the concrete or asphalt pavements, the following shall then apply:
1. Concrete pavement replacement shall be at least the thickness of existing slab and have a minimum 18 inches bearing on undisturbed ground on each side of the trench excavation. The existing slab shall be saw-cut to provide the concrete replacement width required; however, if a saw-cut is closer than 3 feet from a parallel joint, the existing slab shall be removed and replaced to that joint.
 2. The concrete replacement shall be reinforced in a manner equal to the existing slab; however, if the existing slab is not reinforced, the replacement concrete shall be reinforced in accordance with Department of Roads standards. A temporary cold patch shall be used to surface the area where the concrete has been removed until the concrete pavement can be replaced. The Contractor shall maintain this temporary cold patch until it is removed for completion of Work.
 3. Asphalt surfaces shall be replaced to sawed joints as directed by the Engineer. A temporary cold patch shall be used to surface the area where the asphalt has been removed until the asphalt pavement can be replaced. The Contractor shall maintain this temporary cold patch until it is removed for completion of Work.
- E. If seasonal conditions prevent final cleaning and restoration, the Contractor shall proceed with temporary stabilization of the disturbed area. Temporary stabilization shall consist of rough grading the disturbed area to a condition ready to receive topsoil and seeding and mulching the disturbed area. Temporary stabilization materials shall be removed and disposed of, and final cleanup and restoration shall be completed no later than 60 days after seasonal conditions allow performance of the required Work.
- F. For restoration of locations where buried manholes are found, the Contractor shall be responsible for restoring all areas disturbed by its equipment and operation to equal or better condition than what was encountered upon initial arrival.

01 75 00 STARTING AND ADJUSTING

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Engineer seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are completed and tested.
- F. Execute start-up under supervision of responsible Contractor's personnel in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve

equipment or system installation prior to start-up and to supervise placing equipment or system in operation.

- H. Submit a written report indicating that the equipment or system has been properly installed and is functioning correctly.

01 76 00 PROTECTING INSTALLED CONSTRUCTION

- A. Contractor acknowledges finished and unfinished portions of the Work are considered an attractive nuisance. As such, the Contractor shall arrange for all necessary precautions to protect the Work from vandalism, damage, and the like.
- B. Protect installed Work where specified in Divisions 02-49.
- C. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- D. Prohibit traffic or storage upon pump station slabs. If traffic or activity is necessary, obtain Engineer's approval prior to commencing Work.
- E. Prohibit traffic from landscaped areas.

01 77 00 CLOSEOUT PROCEDURES

- A. Work shall be considered Substantially Complete when the Project is sufficiently complete in accordance with the Contract Documents such that the Owner can utilize the Work for its intended use. Specifically, the proposed sewer is tested and approved for use and all pavement is restored.
- B. Before Work shall be considered to have reached Final Completion, the Contractor shall have completed all items of Work under this Contract, removed all debris and waste materials from the work areas, removed temporary controls such as traffic devices and soil erosion measures, and repaired and restored any damaged areas.

01 77 13 PRELIMINARY CLOSEOUT REVIEWS

- A. The Engineer, at its discretion, will walk the site and/or review the completed Work with Contractor to determine if the Work is eligible for Substantial Completion, discussing any items needing restoration or other corrections.
- B. All appropriate safety precautions shall be taken immediately prior to the start of any inspection.
- C. Discussions will form the basis of any necessary punch list to be issued following the closeout review site walk.
- D. If the results of the site walk meet the criteria for Substantial Completion, the Engineer will issue a Certificate of Substantial Completion.
- E. While awaiting the Engineer's submittal of the final punch list to the Contractor (Section 01 78 13), the Contractor shall complete the items discussed during the closeout review site walk.

01 78 00 CLOSEOUT SUBMITTALS

- A. When, in the opinion of the Engineer, Work has reached Substantial Completion, the Contractor shall submit to the Owner, through the Engineer, the following items for review
 - 1. A signed Application for Payment Form (Section 00 62 76) with the Contractor's Final Request for Payment
 - 2. A signed Certificate of Completion Form (Section 00 65 19)
 - 3. Final and Unconditional Waiver of Liens and Claims from all Suppliers and Subcontractors indicating that all debts for labor, materials, and equipment incurred in connection with this Contract have been paid in full
 - 4. Consent from Surety Company

- B. Letters of Release may be required approving final payment to the Contractor from all agencies concerned with the Work, including the department of transportation, county road commissions, the office of public works, municipalities, electric, gas, telephone, and other utilities, and railroad companies. The Contractor shall allow sufficient time after submittal of the above data for verification.

01 78 13 COMPLETION AND CORRECTION LIST

- A. Following the closeout review site walk, the Engineer shall review all Work and submittals for compliance with the Contract requirements and release a final punch list of deficiencies for correction by the Contractor. Contractor shall address the items discussed during the preliminary closeout review while anticipating the Engineer's final punch list. Upon receiving the list, the Contractor shall correct each deficiency and respond to each item on the list. The process shall repeat until all items are satisfactorily addressed.
- B. When approved, the Engineer shall recommend the Owner accept the Work, release the Contractor, and make final payment to the Contractor. The Contractor shall not, however, be released from any conditions of the Performance Bond, legal rights of the Owner, warranties, guarantees, and Correction of Faulty Work following final payment.
- C. The Engineer, at its discretion, shall issue a final Change Order stating the final quantities for the Project. Thereafter, the Owner will certify the approval of the Final Contract Amount which shall be the original Contract Amount plus all approved additions less all approved deductions and the Engineer shall forward all submitted data to the Owner.

01 78 23 OPERATION AND MAINTENANCE DATA

- A. Where Operations and Maintenance manual content is specified in individual specification sections (Divisions 02-49), Contractor shall submit reviewed manual content. Where applicable, Contractor shall clarify and update reviewed manual content to correspond to modifications and field conditions.
- B. Contractor shall submit three bound and labeled paper copies and one electronic (PDF) copy prior to requesting inspection for Substantial Completion and at least 30 days before commencing any required demonstration and training. Engineer may return a copy with comments at its discretion.
- C. Contractor to correct or modify each manual to comply with any comments from the Engineer. Contractor shall submit three final bound and labeled paper copies and one electronic (PDF) copy of each corrected manual within 30 days of receipt of Engineer's comments and prior to commencing any demonstration and training.
- D. Unless otherwise indicated, the Contractor shall organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system.
- E. A Table of Contents listing each product is required, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number and title.
- F. At a minimum, the following general information is required for each system:
1. Product name, model number, and use designations for products indicated on Contract Documents
 2. Manufacturer's name
 3. Equipment identification with serial number of each component
 4. Equipment function
 5. Operating characteristics
 6. System, subsystem, and equipment descriptions

7. Use designations for systems and equipment indicated on Contract Documents
- G. At a minimum, the following operations information is required for each system:
 1. Performance and design criteria
 2. Operating standards
 3. Operating procedures
 4. Operating logs
 5. Wiring diagrams
 6. Control diagrams
 7. Piped system diagrams
 8. Precautions against improper use
 9. License requirements including inspection and renewal dates
 10. Startup procedures
 11. Equipment or system break-in procedures
 12. Routine and normal operating instructions
 13. Regulation and control procedures
 14. Instructions on stopping
 15. Normal shutdown instructions
 16. Seasonal and weekend operating instructions
 17. Required sequences for electric or electronic systems
 18. Special operating instructions and procedures
- H. At a minimum, the following maintenance information is required for each system:
 1. Inspection procedures
 2. Types of cleaning agents to be used and methods of cleaning
 3. List of cleaning agents and methods of cleaning detrimental to product
 4. Schedule for routine cleaning and maintenance
 5. Repair instructions
 6. Lists of repair materials and local sources of materials and related services
 7. List of spare parts and local sources for parts
 8. Copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds
 9. Emergencies
 10. Description and explanation of warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of installer, supplier, and manufacturer to maintain warranties
 11. Instructions on stopping
 12. Shutdown instructions for each type of emergency
 13. Operating instructions for conditions outside normal operating limits
 14. Required sequences for electric or electronic systems
 15. Special operating instructions and procedures

01 78 36 WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrently with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. All equipment furnished and Work performed shall be under warranty for a period of two years from the date of final acceptance, in accordance with any "Maintenance and Guarantee Bond", from the date of final payment for the Contract Work regardless of the terms of any manufacturer or supplier warranties unless specifically identified in the Drawings or Division 02 through 49 Specifications that warranties for certain items are to exceed the two-year warranty.
- C. All Work specified to be designed or supplied by the Contractor will be guaranteed to perform as specified. Due to the defect, the Contractor shall supply any service material, equipment, or additional repairs required without charge.
- D. All parts of Work or equipment will be warranted to be free from defects in workmanship, design, and materials. If, in the opinion of the Engineer, any part of the equipment should prove defective either in material, workmanship, or operation during the warranty period, it will be replaced, and the unit will be restored to service at no expense to Owner. The two-year warranty period will begin again for that item after repair of equipment and other parts repaired in system. Contractor shall perform repairs expeditiously as directed by Engineer.
- E. Provide warranty from manufacturer for all major pieces of equipment. Manufacturer's warranty period will be concurrent with Contractor's running at a minimum of one year from date of final acceptance, unless otherwise specified. Engineer reserves the right to request warranties for equipment not classified as major. Contractor shall warrant equipment not considered to be major in Contractor's two-year warranty period even though certificates of warranty may not be required. This warranty from the manufacturer will not relieve the Contractor of the two-year warranty starting at the time of Owner's final acceptance of the equipment.
- F. Owner shall have the right to take possession of and use any completed or partially completed portions of the Work, notwithstanding that the time for completing the entire Work or such portions may not have expired. Should the Owner choose to occupy and use any completed portion of the Work prior to Final Completion, the two-year warranty for such portion of the Work will begin on the date of Project final acceptance, unless otherwise specified. Taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract Documents. If such prior use increases the cost of or delays completion of Work or causes refinishing of completed Work, Contractor is entitled to such extra compensation, extension of time, or both, as the Engineer may determine.

01 78 39 PROJECT RECORD DOCUMENTS

- A. The Contractor will keep one record copy of all Specifications, Drawings, Addenda, Contract Modifications, and Shop Drawings at the site in good order and annotated to show all measurements and changes made during the construction process. Contractor's annotations will form the basis of an as-built plan set.
- B. These record documents shall be available and delivered to the Engineer for the Owner prior to submittal of final application for payment.

01 79 00 DEMONSTRATION AND TRAINING

- A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

END OF SECTION

SECTION 31 05 16
AGGREGATES FOR EARTHWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aggregate materials to construct a granular subbase on an approved surface.

1.02 REFERENCES

- A. MDOT 2012 Standard Specifications for Construction – Section 902
- B. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 10-lb Hammer and 18-inch Drop.
- C. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil Aggregate Mixtures.

PART 2 PRODUCTS

2.01 AGGREGATE MATERIALS

- A. Class II – Class II granular material conforming to MDOT Specification 902.07 - Granular Materials for Fill and Subbase.
- B. MDOT 21AA, 21A, 22A, 23A - Dense graded aggregate for aggregate base course conforming to MDOT Section 902.05 -Dense Graded Aggregates, Surface Course, Shoulders, and Patching.
- C. Granular fill: Well graded cohesionless soil materials complying with AASHTO 145 soil classifications group A-1, A-2, or A-3.

2.02 SOURCE QUALITY CONTROL

- A. Tests and analysis of aggregate material will be performed in accordance with ANSI/ASTM D1557 and ASTM D3017.
- B. If tests indicate materials do not meet specified requirements, all stockpiled and placed material is to be removed of and disposed of off-site.

PART 3 EXECUTION

3.01 STOCKPILING

- A. Stockpile in sufficient quantities to meet project schedule and requirements.
- B. Separate differing materials with dividers or stockpile apart to prevent contamination of materials.
- C. Direct surface water away from stockpile site so as to prevent erosion or deterioration of materials.

3.02 STOCKPILE CLEANUP

- A. Remove remainder of stockpile areas, return area to a clean and neat condition. Grade site surface to prevent free standing surface water and restore with seed or as appropriate.
- B. If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 31 23 00

EXCAVATION AND FILL

PART 1 GENERAL

1.01 REFERENCES

- A. ASTM D1557 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort
- B. ASTM D2487 – Unified Soil Classification System
- C. ASTM D6938 – Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods
- D. MI-OSHA
- E. Michigan Department of Transportation Standard Specifications for Construction

1.02 DEFINITIONS

- A. Degree of Compaction: Expressed as a percentage of the maximum density obtained by test procedure ASTM D1557.

1.03 SUBMITTALS

- A. CONTRACTOR shall submit sample of proposed backfill materials to third party testing laboratory or Owner's testing agency a minimum of 2 business days prior to placement.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Transport, store, and place on-site in a manner to prevent segregation of materials or mixing with on-site soils of differing types.
- B. Protect from freezing if work occurs during winter months.

PART 2 PRODUCTS

2.01 SOIL MATERIALS

- A. Soil used to backfill beyond aggregate wall backfill shall meet MDOT Class II criteria.
- B. General site soil shall consist of any materials classified as GW, GP, GP-GM, GW-GM, GP-GC, GP-GW, SP, SP-SM, SP-SC, SC, or CL. Do not use organic soils or silts (Pt, OH, OL, ML, ML-CL).
- C. Fill placed on site shall be free of debris greater than 3 inches in diameter, roots, wood, scrap material, vegetation, refuse, frozen, or deleterious materials.
- D. Aggregate used for drainage shall meet MDOT Class 6A.

- E. Berm fill shall consist of low-permeability soil consisting of either clayey sand (SC) or clay (CL).
- F. Topsoil shall be friable soil representative of productive soil free of subsoil, stumps, rocks larger than 1 inch in diameter, brush, weeds, toxic substances, and other material detrimental to plant growth. Topsoil shall have a minimum organic content of 5% and a pH of 5.5 to 7.
- G. Riprap bedding material shall consist of sand, gravel, or crushed rock with a maximum particle size of 2 inches and with less than 7 percent passing the No. 200 sieve.
- H. Riprap shall consist of rock or concrete fragments sufficiently durable to ensure permanence in the environment in which it is to be used. Individual pieces shall be less than 150 pounds, with particle sizes of 6 to 18 inches in diameter.

2.02 MATERIALS

- A. Steel sheet piling shall meet the requirements of ASTM A572, (Grade 60).
- B. Steel corners, tees, wyes, and crosses shall meet the requirements of ASTM A572.

Steel sheet piles required for the PROJECT shall be the type and weight shown on the

PART 3 EXECUTION

3.01 PROTECTION

- A. CONTRACTOR is responsible for designing shoring/utilizing trench support in accordance with MI-OSHA standards.
- B. Prevent undermining of pavements, foundations, slabs, and adjacent seawalls.
- C. Establish site grades to prevent stormwater runoff in excavations.
- D. Do not place engineered fill in wet excavations. Dewater as required.
- E. CONTRACTOR is responsible for verifying the locations of all utilities and protecting utilities during construction operations.

3.02 MACHINERY AND EQUIPMENT

- A. CONTRACTOR shall utilize equipment suitable for performance of required work. In general, utilize plate-type compactors for granular fill and sheepsfoot type compactors for clay fill.

3.03 PREPARATION

- A. Clearing and Grubbing:
 - 1. Unless indicated otherwise, remove trees, stumps, logs, shrubs, brush, vegetation, debris, and other items within the work area.
 - 2. Remove vegetation, decayed vegetable matter, mulch, rubbish, and tree roots greater than 1 inch in diameter.

- B. Topsoil removed from work area and meeting project requirements may be salvaged and reused.

3.04 EXCAVATION

- A. Excavate to contours, elevation, and dimensions indicated. Reuse excavated materials that meet the specified requirements for the material type required at the intended locations. Keep excavations free from water.
- B. Excavate soil disturbed or weakened by contractor's operations and soils softened or made unsuitable for subsequent construction due to exposure to weather.
- C. Excavations below indicated depths will not be permitted except to remove unsatisfactory material. Backfill over-excavations and undercuts with granular material.
- D. Backfill excavations with engineered fill meeting the specified requirements and compacted to a minimum of 95% of the maximum density per ASTM D1557.
- E. Satisfactory excavated material for fill or backfill shall be placed in separate stockpiles.
- F. Excess materials that cannot be reused as engineered fill shall be properly disposed of off-site.

3.05 SUBGRADE PREPARATION

- A. Unsatisfactory material in surfaces to receive fill or in excavated areas shall be removed and replaced with satisfactory materials.
- B. Sloped surfaces steeper than 1 vertical to 4 horizontal shall be stepped or benched such that new engineered fill is placed in horizontal layers.
- C. Proofroll subgrade prior to placing engineered fill and pavement/sidewalk base. Proofrolling shall be performed with a loaded tandem-axle dump truck. Operate the truck in a systematic manner to ensure uniform coverage of the subgrade. Proofrolling shall be performed in the presence of the Owner's representative or third party testing agency. Rutting or pumping shall be remediated as directed by the Owner's representative.

3.06 FILLING AND BACKFILLING

- A. Fill and backfill to contours, elevations, and dimensions indicated on plans.
- B. Compact each lift before placing overlying lift.
- C. Compact areas not accessible to rollers or compactors with mechanical hand tampers.
- D. Aerate material with excess moisture content to establish an appropriate moisture content of $\pm 2\%$ of optimum moisture content.
- E. Do not place engineered fill over wet or frozen subgrade.
- F. Place engineered fill in loose layer thicknesses of no greater than 9 inches in areas where heavy equipment is used to obtain compaction, and in loose layers of 6 inches where hand-operated equipment is used.

- G. Do not overstress walls.

3.07 RIPRAP

- A. Trim and dress areas to conform to cross sections, lines, and grades shown within a tolerance of 0.1 foot.
- B. Place bedding material uniformly to a thickness of at least 3 inches, extending from face of seawall to a minimum of 6 inches beyond toe of riprap.
- C. Place rock for riprap on prepared bedding material to produce a well-graded mass with the minimum practicable percentage of voids in conformance with lines and grades indicated. Distribute larger rock fragments with dimensions extending the full depth of the riprap throughout the entire mass and eliminate "pockets" of small rock fragments. Rearrange as necessary to obtain the distribution of fragment sizes specified above.

3.08 FINISH OPERATIONS

- A. Grading:
 - 1. Finish grades as indicated within 0.1 foot.
 - 2. Grade areas to drain water away from structures.
 - 3. For existing grades to remain but that were disturbed by Contractor's operations, grade as directed by Owner's representative.
 - 4. Remove vegetation, decayed vegetable matter, mulch, rubbish, and tree roots greater than 1 inch in diameter.
- B. Topsoil and Seed:

3.09 DISPOSITION OF SURPLUS MATERIAL

- A. Remove surplus or other soil materials not required or suitable for filling or backfilling, brush, refuse, stumps, roots, timber, and scrap. Properly dispose of off-site.

3.10 FIELD QUALITY CONTROL

- A. Submit one sample of each material used to third party testing agency for determination of maximum density per ASTM D1557.
- B. For engineered fill placed within structural areas (beneath sidewalks and roadways), verify compacted density of engineered fill, each layer, minimum 1 test per 100 square feet.

SECTION 31 23 19

DEWATERING

PART 1 GENERAL

1.01 REFERENCES

- A. ASTM D1557 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort

1.02 SUBMITTALS

- A. Contractor shall submit to the Engineer a general plan for water control 2 weeks prior to mobilization. At a minimum, the plan shall include descriptions of proposed groundwater and surface water control facilities including equipment, methods, power supply, pollution control facilities, and discharge locations.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Onsite materials may be used within the limits of construction to construct temporary dams and berms. Other materials, such as sheeting, sand bags, tanks, sump pumps, and other materials may be used by the contractor.

PART 3 EXECUTION

3.01 GENERAL

- A. Contractor shall provide suitable equipment and labor to remove water and keep the excavations dewatered so that construction can be carried on under dewatered conditions.
 - 1. Water control shall be accomplished such that no damage is done to adjacent channel banks or structures.
 - 2. Continuously control water during course of construction.
- B. Contractor is responsible for investigating and becoming familiar with all site conditions that may affect the work, including surface water, potential flooding conditions, level of groundwater, level of surface water, and other conditions potentially affecting dewatering operations.
- C. Contractor shall conduct operations in such a manner that storm or other waters may proceed uninterrupted along their existing drainage courses.
- D. At no time shall contractor affect existing surface or subsurface drainage patterns of adjacent properties. Any damage to adjacent property resulting from contractor's work shall be repaired by the contractor at no cost to the owner.

- E. Contractor shall remove all temporary water control facilities when they are no longer needed or at completion of the project.
- F. All excavations made as part of dewatering operations shall be backfilled with the same type of materials as was removed, and shall be compacted to a minimum of 95% of ASTM D1557.

3.02 CONSTRUCTION

A. Surface Water Control

- 1. Normal low flows along canals, storm/flood flows in canals, flow from existing storm sewers, local surface inflows not conveyed by pipelines.

B. Contractor shall coordinate, evaluate, design, construct, and maintain temporary water conveyance systems.

- 1. These systems shall not worsen flooding, alter major flow paths, or worsen flow characteristics during construction. Contractor is responsible to ensure that any such worsening of flooding does not occur.
- 2. Contractor is solely responsible for determining the methods and adequacy of water control measures.

C. Contractor shall be responsible for diverting the quantity of surface flow around the construction area so that the excavations will remain free of surface water for the time it takes to install these materials.

- 1. It shall be the contractor's responsibility to determine the quantity of water which shall be diverted to protect the work from damage caused by stormwater or floodwater.
- 2. Temporary structures such as berms, sandbags, pipeline diversions, etc. may be permitted for the control of channel flow, as long as such measures are not a major obstruction to flood flow, do not worsen flooding, or alter historic flow routes.

D. Groundwater Control

- 1. Contractor shall install adequate measures to maintain the level of groundwater below work areas including bases of excavations. Such measures may include installation of perimeter drains, pumping from wellpoints, or pumping from sumps.
- 2. Excavations shall be kept dewatered and stable until the work is complete and the excavations backfilled.
- 3. Contractor may dispose of water encountered IMMEDIATELY BEHIND SEAWALLS into waterways, provided siltation is removed by means of filter or other methods prior to discharge to canals.
- 4. Groundwater away from seawalls may be released locally onto the ground away from work area.
- 5. Discharge to public storm sewers or discharge without treatment into adjacent waterways is prohibited.

E. Any temporary dewatering trenches or well points shall be removed and excavations and boreholes properly abandoned following dewatering operations.

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 REFERENCES

- A. MDOT Standard Specifications for Construction

1.02 SUBMITTALS

- A. Contractor shall submit to the Engineer an erosion control plan and all applicable permits for erosion control 2 weeks prior to beginning work.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Materials may include hay bales, straw bales, or geotextile and shall be free of deleterious materials.

PART 3 EXECUTION

3.01 GENERAL

- A. All temporary and permanent erosion and sediment control practices shall be maintained and repaired as needed to ensure continued performance of the intended function.
- B. Owner's representative will monitor contractor's erosion control and work methods.
 - 1. If the overall function and intent of erosion control is not being met, contractor shall provide additional measures as required to obtain the desired results.
 - 2. Costs for additional erosion control measures shall be paid for at contract unit prices.
- C. The erosion control features installed by the contractor shall be adequately maintained by the contractor until project is complete.
- D. Construction vehicles shall be kept out of watercourses to the extent possible. Where in-channel work is necessary, precautions shall be taken to stabilize the work area during construction to minimize erosion. Canals, including seawalls, beds, and banks, shall be restabilized immediately after in-channel work.

3.02 PROTECTION OF ADJACENT PROPERTIES

- A. Properties adjacent to work areas shall be protected from sediment deposition.
- B. Perimeter controls may be required if damage to adjacent properties is likely, and may include sediment barriers such as straw or hay bales, erosion logs, and silt fences, sediment basins, or a combination thereof.

3.03 CONSTRUCTION

A. Stabilization of Disturbed Areas:

1. Temporary sediment control measures shall be established within five days from time of exposure/disturbance.
2. Permanent erosion protection measures shall be established within five days of final grading of areas.

B. Stabilization of Sediment and Erosion Control Measures:

1. Sediment barriers, perimeter dikes and other measures intended to either trap sediment or prevent runoff from flowing over disturbed areas shall be constructed as a first step in grading and be made functional before land disturbance takes place.
2. Earthen structures such as dams and diversions shall be stabilized within five days of installation.
3. Stormwater outlets shall also be stabilized prior to any upstream land disturbing activities.

C. Stabilization of Waterways and Outlets:

1. All onsite stormwater conveyance channels used by contractor for temporary erosion control purposes shall be designed and constructed with adequate capacity and protection to prevent erosion during storm, flood, and runoff events.
2. Stabilization adequate to prevent erosion shall also be provided at the outlets of all pipes and channels.

D. Storm Sewer Inlet Protection: All storm sewer inlets which are made operable during construction or which drain stormwater runoff from a construction site shall be protected from sediment deposition by the use of filters.

E. Construction Access Routes:

1. Wherever construction vehicles enter or leave a construction site, a Stabilized Construction Entrance is required.
2. Roadways shall be cleaned thoroughly at the end of each day by shoveling or sweeping and material shall be transported to a sediment controlled disposal area.

3.04 DISPOSITION OF TEMPORARY MEASURES

- A. All temporary erosion and sediment control measures shall be disposed of within thirty days after final site stabilization is achieved or after the temporary measures are no longer needed, as determined by the Owner's representative.
- B. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion.
- C. Substantial Completion of Erosion Control Measures:

1. At the time specified in the contractor documents, and subject to compliance with specified materials and installation requirements, contractor shall receive a substantial completion certificate for temporary erosion control measures.
2. Maintenance of Erosion Control Measures after Substantial Completion: Contractor shall be responsible for maintaining temporary erosion control measures as specified in the drawings and contract documents until such time as work has been accepted by the owner, as specified in Section 01 77 00, Closeout Procedures.

D. Final Completion of Erosion Control Measures:

1. After Owner's representative and Owner have determined the drainage area has stabilized, contractor shall remove all remaining temporary erosion control measures.
2. Any damage to the site shall be repaired to the satisfaction of Owner's representative and at no cost to the Owner.

SECTION 31 62 16

STEEL SHEET PILES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This section covers all members to be used in the construction of steel sheet pile. This SPECIFICATION also covers the installation of steel sheet piling and trimming of the sheet pile to the lines and grades shown on the DRAWINGS or as required. This WORK also includes pre-drilling to facilitate driving sheet pile to the designated elevations.

1.02 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:
1. Section 31 23 00, Excavation and Fill.
 2. Section 31 23 19, Dewatering.
 3. Section 31 25 00, Erosion and Sedimentation Controls 1.03

1.0.3 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American Concrete Institute (ACI): 318/318R, Building Code Requirements for Structural Concrete and Commentary.
 2. American Petroleum Institute (API): Spec 5L, Specification for Line Pipe.
 3. ASTM International (ASTM):
 - a. A36, Standard Specification for Carbon Structural Steel.
 - b. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - c. A139, Standard Specification for Electric-Fusion (ARC)-Welded Steel Pipe (NPS 4 and Over).
 - d. A252, Standard Specification for Welded and Seamless Steel Pipe Piles.
 - e. A328, Standard Specification for Steel Sheet Piling.
 - f. A572, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.

- g. A690, Standard Specification for High-Strength Low-Alloy Nickel, Copper, Phosphorus Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments.
 - h. A1011/A1011M, Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
- 4. American Water Works Association (AWWA):
 - a. C200, Steel Water Pipe- 6 in. and Larger.
- 5. American Welding Society (AWS):
 - a. D1.1, Structural Welding Code- Steel

1.04 SUBMITTALS

- A. Provide qualifications of proposed sheet pile installer.
- B. CONTRACTOR shall provide information from the manufacturer that indicates the sheet piling meets or exceeds the SPECIFICATIONS listed in this section.
- C. CONTRACTOR shall submit verification from the manufacturer that the hammer can deliver the required energy.
- D. Splice locations, if necessary, shall be reviewed and accepted by ENGINEER prior to installation.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Sheet piling installer shall have, as a minimum, three (3) successful past installations of sheet piling of comparable overall heights and sections and comparable penetration into soils similar to those found on the PROJECT.

PART 2 PRODUCTS

2.01 GENERAL

- A. All steel sheet piling shall be new and unspliced material throughout, unless otherwise reviewed and accepted by ENGINEER.
- B. Steel sheet piles and special fabricated shapes shall be of a design that ensures continuous interlock throughout the entire length when in place.

2.02 MATERIALS

- A. Steel sheet piling shall meet the requirements of ASTM A572, (Grade 60).
- B. Steel corners, tees, wyes, and crosses shall meet the requirements of ASTM A572.
- C. Steel sheet piles required for the PROJECT shall be the type and weight shown on the DRAWINGS. Sheet piling shall be constructed with a weathering finish.

1. Additional length beyond those indicated on the DRAWINGS may be required to provide for trimming of tops of sheet piling.
- D. The interlocks between steel sheet pile sections shall be configured such that the average width of the annular space between all contact points of the interlocks shall be a maximum of one-eighth (1/8) inch, as determined by ENGINEER.
- E. Steel sheet piles and interlocks shall not have excessive kinks, camber or twist that would prevent the pile from reasonably free sliding to grade.
- F. All fabricated connections shall be made with the use of angles or bent plates, as necessary, and shall be adequately welded or connected with high strength bolts as accepted by ENGINEER.
- G. Handling Holes:
 1. If handling holes are provided, they shall be two (2) standard two and nine-sixteenth (2-9/16) inch diameter handling holes located six (6) inches from one end.
 2. The holes shall be plugged by welding a piece of steel over the hole prior to installing any riprap, backfill or drop structure cap.
 3. The plated hole shall be watertight.

2.03 STORAGE AND HANDLING

- A. Do not subject piles to damage by impact bending stresses in transporting to and storing piles onsite.
- B. Store and handle piles such that corrosion protection coating will not be damaged.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin sheet pile installation until the earthwork in the area where the piles are to be driven has been completed to the extent that the grade elevation is at no more than twelve (12) inches above or below the top of the piling elevation as indicated on the DRAWINGS.

3.02 PREPARATION

- A. Any fill along the alignment of the sheet pile must be in place to sub-grade elevations and compacted prior to driving the sheet pile.
- B. Fill material (except riprap, boulders, bedding and grout) is not to be placed around the sheet pile after the sheet pile is in place.

3.03 INSTALLATION

- A. General:
 1. All welding or gas cutting shall be in accordance with the current standards of the American Welding Society.

2. Virtual Refusal:

- a. Steel sheet piling shall be driven to the depths shown on the DRAWINGS or to virtual refusal.
- b. Virtual refusal is defined as ten (10) blows per inch with an approved pile hammer.
- c. A pile hammer shall be used to determine virtual refusal.
- d. The hammer shall be operating at the manufacturer's recommended stroke and speed when virtual refusal is measured.

B. Sheet Piling Driving:

1. Steel sheet piling shall be assembled before driving and then driven as a continuous wall, progressively in stages to keep the piles aligned correctly and minimize the danger of breaking the interlock between the sheets.
 2. Steel sheet piling shall be driven to form a tight bulkhead.
 3. A driving head shall be used and any piling which is damaged in driving or which has broken interlocks between sections shall be pulled and replaced at CONTRACTOR's expense.
 4. The piling shall be driven within the following tolerances:
 - a. Alignment:
 - 1) Sheet pile shall be driven to form a relatively straight line between the termini points shown on the DRAWINGS.
 - 2) Horizontal deviation of any point from a straight line connecting the two ends of the wall section shall be a maximum of six (6) inches.
 - b. Plumbness: Each individual sheet pile section shall be driven vertical, within a horizontal tolerance of two percent (2%) of any vertical length measured along the pile.
 - c. Elevation:
 - 1) Tops of sheet pile sections shall be within a tolerance of one (1) inch from plan elevations.
 - 2) CONTRACTOR shall not be paid for excess sheet pile trimmed off the end of the pile to meet final grade.
- C. CONTRACTOR shall brace and/or provide soil grading as necessary during construction operations in order to provide lateral stability for the sheet pile wall. The sheet pile wall has been designed for the soil grades of the final configuration denoted on the DRAWINGS only. Other temporary configurations during the construction period shall not be allowed.
- D. Care shall be taken during driving to keep from causing deformations of the top of the piles, splitting of section, or breaking of the interlock between sections. Care shall also be taken

during driving to prevent and correct any tendency of steel sheet piles to twist or get out of plumb.

- E. Steel Z piling shall be driven with the ball-end leading. Proper care and planning shall be used to allow for this construction procedure in both immediate and possible future walls.
- F. Alternate Z piles shall be reversed end for end for proper interlocking in the "normal" position. Piles shall also be aligned properly to maintain a "normal" driving width.
- G. For sheet piles driven into the native soils, pre-drilled soils, or excavated soils a vibratory driver may be used as long as the required depth is obtained.
- H. For sheet piles being driven into bedrock, an approved hammer utilizing a minimum hammer energy of 19,000 foot-pounds per square inch of steel section shall be used to obtain the required depth or virtual refusal. The hammer shall be clearly marked so that it can be identified at the job site.
- I. Steel sheet pile that is full length as shown on the DRAWINGS and is required to be driven below the specified cutoff elevation shall be spliced with additional steel sheet piling with a full penetration butt weld.

END OF SECTION

SECTION 32 05 05
SELECTIVE DEMOLITION FOR EXTERIOR IMPROVEMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal and disposal or salvage of structures.
- B. Disconnection, capping, and removal of existing utilities.
- C. Demolition and removal of slabs on grade.
- D. Refer to items as indicated on drawings.

1.02 REFERENCED SECTIONS

- A. Section 01 60 00 Product Requirements
- B. Section 01 70 00 Execution and Closeout Requirements

1.03 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01 70 00.
- B. Accurately record actual locations of capped utilities and subsurface obstructions.

1.04 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for demolition of structures, safety of adjacent structures, dust control, and disposal of materials.
- B. Obtain required permits from authorities.
- C. Notify affected utility companies prior to starting work and comply with their requirements.
- D. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.
- E. Rules, regulations or laws of any controlling Governmental Agency shall govern when they are more stringent than the requirements of this Section.

1.05 DESCRIPTION

- A. Provide all labor, materials, and equipment necessary for the completion of all Demolition as shown on the Drawings and specified herein.
- B. All on and offsite Work included consists of but is not limited to:
 - 1. Demolition in part or in whole of existing buildings, footings, foundations, structures, and facilities together with subsequent removal of resulting debris.
 - 2. Removal of existing sidewalks, drives, curbs, and pavement.
- C. Removal, disconnecting or capping off of existing utilities, underground structures, septic tanks, disposal fields, etc.
- D. Removal or clearing of landscaping, trees, brush, debris, and miscellaneous Site elements as indicated on the Drawings.
- E. Removal from Site and disposal of all excess and unusable material.

1.06 DEFINITIONS

- A. Remove: Remove items from existing construction and legally dispose of them off-site.
- B. Remove and Reinstall: Carefully remove items from existing construction, prepare them for reuse, and reinstall them where indicated. Prior to reinstalling the item, the Contractor shall make a determination as to its soundness. Items which exhibit signs of wear or deterioration shall only be discarded on agreement with the Owners Representative.
- C. Remove and Salvage: Remove items from existing construction and deliver them to owner.

1.07 QUALITY ASSURANCE

- A. The Contractor shall visit the Site so that a full understanding of the difficulties and restrictions for execution of the Contract are made. Verify the location of all pertinent items. No additional compensation will be allowed for failure to be so informed.
- B. The Contractor shall submit a schedule indicating proposed sequence of operations for selective demolition Work to the Owner for review prior to commencing Work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
- C. Comply with regulatory requirements and notification regulations before beginning selective demolition.
- D. Comply with hauling and disposal regulations of authorities having jurisdiction. A receipt indicating acceptance of hazardous wastes from a landfill facility licensed to accept such materials shall be submitted to the owner.

1.08 JOB CONDITIONS

- A. Existing structures, utilities, drives, walks, etc., have been shown on the plans in their approximate location, others may exist and may be found upon visiting the site. It shall be the responsibility of the Contractor to accurately locate all facilities and to determine their extent. If such facilities obstruct the progress of the Work and are not indicated to be removed or relocated, they shall be removed or relocated only as directed by the Owner.
- B. Owner assumes no responsibility for the actual condition of items or structures to be demolished.
- C. Contractor shall investigate the possibility of existing septic tanks and drain fields near the location of existing foundations, prior to demolition. In the event that any possible septic tanks exist, this Contractor shall make further investigations, as necessary, to locate the septic tank and drain fields. Any septic tank and drain field found to exist shall be removed in accordance with the requirements of State and Local Health Departments.
- D. Protect trees, plants, and natural features which are to remain as final landscaping.
- E. Restore to their present conditions any pavement in public right-of-way that is disturbed by the Work under this Section. All pavement restoration work in public rights-of-way shall be performed to the satisfaction of the governmental agencies having jurisdiction.

- F. If cutting torches are used, take all necessary precautions to prevent setting of fires, including the use of fireproof tarpaulins and fire extinguishing apparatus adjacent to cutting area.
- G. Notify utility companies if removal or relocation of any existing utilities is required.
- H. Promptly repair damages caused to adjacent facilities by demolition Work.
- I. Do not close, block, or otherwise obstruct access to existing streets, sidewalks, driveways, and other adjacent occupied or used facilities during demolition. Any proposed closures shall have written permission from the authority having jurisdiction.
- J. Maintain existing utilities and protect them against damage during demolition operations.
 - 1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.
 - 2. Maintain fire protection services during demolition operations.
- K. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
- L. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.
- M. Underground Storage Tank Removal: Contact all State, Federal and local agencies as may be required and determine the governing agencies requirements and provide agency contact information to the owner prior to construction.
 - 1. Completely remove all tanks, equipment lines, foundations and surrounding soils. Keep owner informed as to the progress of the work and notify immediately of any irregularities.

1.09 DRAINAGE MAINTENANCE

- A. During the entire course of operations, all existing drainage ways, both into and from the Project area shall be maintained in a functional condition.
- B. At all times during the clearing operation, the exposed areas of subgrade shall be maintained in a condition compatible with positive drainage of the Work area. Failure to maintain such drainage shall be considered adequate cause for the Contractor to order temporary suspension of the Work.
- C. Cut drainage swales and provide temporary grading to carry storm water away from the demolition area. No water will be permitted to stand in open excavations.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Use repair materials identical to existing materials. If identical materials are unavailable, use new materials whose performance is equal to or surpasses that of the existing material.
- B. Comply with material and installation requirements specified in the individual sections of this contract.

PART 3 EXECUTION

3.01 PREPARATION

- A. Provide, maintain, and later remove, temporary barriers, warning signs, blinker lights and other safety measures as required for the protection of personnel and the public.
- B. Locate, identify, and protect all known utilities which are to remain. If utilities are uncovered that are not shown on the plans, notify the owner and cease work in the immediate areas until instructed to how to proceed.
- C. Notify utility companies, if required to remove and/or relocate utilities.
- D. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structures to be demolished and adjacent facilities to remain.
- E. Cease operations and notify Owner immediately if safety of structure or adjacent structures appear to be endangered. Take precautions to support structure and DO NOT resume operations until a determination is made for continuing operations.
- F. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building.
- G. Check with the water and sewer departments, Gas Company, and private utility companies to assure that all utilities and services, are inoperative prior to their removal.
- H. Protect trees, plant growth, and features designed to remain as final landscaping.
- I. If cutting torches are used, take all necessary precautions to prevent setting of fires, including the use of fireproof tarpaulins and maintenance of fire extinguishing apparatus adjacent to cutting area.

3.02 DEMOLITION REQUIREMENTS

- A. Conduct demolition to minimize interference with adjacent structures and occupancies.
- B. Cease operations immediately if adjacent structures appear to be in danger. Notify Engineer. Do not resume operations until directed.
- C. Conduct operations with minimum interference to public or private accesses. Maintain egress and access at all times.
- D. Conduct operations in such a manner as to create a minimum of noise, dust and other disturbances.
- E. Do not allow removed materials, rubbish and debris to accumulate. Keep construction area and all public and private property used in connection with the work in a neat and orderly condition.
- F. Do not interrupt existing utilities.
- G. Methods shall be such as to prevent premature collapse of any section and damage to facilities indicated to remain in place and new construction.
- H. Removed material not indicated for turning over to owner or specified for reuse, as well as rubble and debris resulting from removal operations, shall become the property of the contractor and shall be removed daily from the project site and legally disposed of off the project site.

- I. When required to lift materials and/or equipment over or near an existing occupied building, advanced notice and arrangements with the owner's representative must be made to have any potential endangered spaces vacated. No such lifting shall be done without the permission of the owner's representative.

3.03 DEMOLITION

- A. Perform demolition Work in a systematic manner. Use such methods as required to complete Work indicated on Drawings in accordance with demolition schedule and governing regulations.
- B. Sawcut asphalt pavement full depth at limits indicated for removal.
- C. Concrete pavement shall be sawcut full depth and removed to the joint nearest the indicated removal limit or where specifically directed.
- D. Where piping is to be bullheaded, provide a permanent, water-tight plug consisting of brick and concrete mortar, one foot thick or prefabricated plugs intended for this purpose.
- E. Maintain in operating conditions all active utilities, sewers and drains encountered.
- F. The Contractor shall use extreme caution in removing any structures and utilities above and below grade to prevent damage to existing utilities which are to remain in service. Any existing utilities to remain, which are in any way damaged, shall be replaced at no additional cost to the Owner.
- G. Conduct operations in such a manner as to minimize noise, dust and other disturbances.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

- A. Demolished material not indicated for turning over to the owner or specified for reuse, including rubble and other debris, shall become the property of the contractor and shall be removed daily from the project site and legally disposed of off the project site, at no expense to the Owner.
 - 1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
 - 2. Burning of materials shall not be permitted on Site.

3.05 CLEANUP AND REPAIR

- A. Upon completion of demolition Work, remove tools, equipment, and demolished materials from Site.
- B. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start of operations. Repair adjacent construction damaged by demolition Work.

END OF SECTION

SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aggregate base course

1.02 REFERENCED SECTIONS

- A. Section 01 40 00 Quality Requirements
- B. Section 31 05 16 Aggregates for Earthwork

1.03 REFERENCES

- A. ASTM International. For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.
 - 1. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³(2,700 kN-m/m³))
 - 2. ASTM D2922 - Standard Test Method for Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 3. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
- B. Michigan Department of Transportation - MDOT
 - 1. 2003 Standard Specifications for Construction.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. MDOT 21AA Dense Graded Aggregate.
- B. Class II Granular Material: As specified in Section 31 05 16 Aggregates for Earthwork.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify substrate has been inspected, gradients and elevations are correct and dry.

3.02 AGGREGATE PLACEMENT

- A. Spread aggregate over prepared substrate to a total compacted thickness as shown on plans.
- B. Place aggregate in maximum 8-inch layers and roller compact.
- C. Level and contour surfaces to elevations and gradients indicated.
- D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.

- E. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.03 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10-foot straight edge.
- B. Scheduled Compacted Thickness: Within 1/4 inch.
- C. Variation from True Elevation: Within 1/2 inch.

3.04 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01 40 00.
- B. Compaction testing will be performed in accordance with ASTM D1557, ASTM D2922, ASTM D3017.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Frequency of Tests: 50 feet

3.05 SCHEDULES

- A. Under Asphalt Pavement:
 - 1. Compact MDOT 21AA aggregate materials to achieve compaction of 95 percent of the maximum dry density.
- B. Under Concrete Sidewalks and Slabs
 - 1. Compact Class II granular materials to achieve compaction of 95 percent of the maximum dry density.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 GENERAL

1.01 DESCRIPTION:

- A. Plant mixed hot mix asphalt (HMA) consists of asphalt binder, aggregates, mineral filler and other additives. Refer to construction documents for additional requirements for producing, furnishing, and installing HMA.
- B. All provisions of section 501 of the 2003 Michigan Department of Transportation (MDOT) Standard Specifications of Construction shall apply except as stated herein.

1.02 SECTION INCLUDES

- A. HMA paving
- B. HMA patching
- C. HMA paving overlays
- D. Cold Milling of existing HMA pavement
- E. Pulverizing / Base Crushing of HMA pavement

1.03 REFERENCES

- A. MDOT 2003 Standard Specifications for Construction (MDOT)
- B. American Society of Testing Materials (ASTM)

1.04 QUALITY ASSURANCE

- A. Quality control for HMA pavements shall be in accordance with Section 503 of the 2003 MDOT Standard Specifications for Construction.
- B. Submit proposed mix designs for each HMA mix prior to commencement of work. Follow the Procedures Manual for Mix Design Processing for all mix designs. Provide written certification that the materials used in the mixture are from the same source as those used in developing the mix design and that each material item meets specified requirements.
- C. Testing, as required, will be performed by the owner/construction engineer in accordance with Section 504 of the 2003 MDOT Standard Specifications for Construction.
- D. HMA materials not complying with specified requirements shall be repaired or removed and replaced with new paving.

1.05 WEATHER LIMITATIONS

- A. Section 502 of the MDOT 2003 Standard Specifications for Construction shall govern.
- B. Do not place HMA or apply bond coat when precipitation is imminent or when moisture on the existing surface will prevent satisfactory curing.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Coarse aggregate shall consist of crushed stone, crushed gravel, a mixture of uncrushed gravel with either crushed stone or crushed gravel, or other inert

material having similar characteristics. It shall be composed of clean, tough, durable fragments free from an excess of flat or elongated pieces and shall be free of organic matter and deleterious substances and meet the requirements of Division 9 in the MDOT 2003 Standard Specifications for Construction.

- B. Fine aggregate shall be well graded from coarse to fine and consist of natural sand, stone screenings, or a blend of natural sand and stone screenings. It shall be composed of rough surfaced and angular grains of quartz or other hard durable rock and meet the requirements of Division 9 in the MDOT 2003 Standard Specifications for Construction.
- C. HMA surface course shall be a mixture of 4.5 percent to 7.0 percent viscosity graded Asphalt Cement AC-10 (85/100 penetration grade) meeting the requirements of Division 5 in the MDOT 2003 Standard Specifications for Construction for aggregate gradation and HMA. Refer to plans for pavement cross-sections and mix designs. Recycled asphalt products (RAP) are not allowed in surface course mixes.
- D. HMA leveling course shall be a mixture of 3 percent to 6 percent viscosity graded Asphalt Cement AC-10 (85/100 penetration grade) meeting the requirements of Division 5 in the MDOT 2003 Standard Specifications for Construction for aggregate gradation and HMA. Refer to plans for pavement cross-sections and mix designs.
- E. Bond Coat material shall be SS-1h or CSS-1h emulsified asphalt, Grade RS-2 and shall conform with the requirements specified in Section 904 of the 2003 MDOT Standard Specifications for Construction.

PART 3 EXECUTION

3.01 BASE PREPARATION

- A. Subgrade preparations shall consist of the final machining of the subgrade immediately prior to placing the bituminous base course. The surface shall be true to line and grade. Proof-roll all areas to receive the base course to locate all soft surface areas. Replace soil that deflects and will not compact with acceptable fill material and compact such fill in accordance with these Specifications.
- B. Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

3.02 HMA PLACEMENT

- A. HMA pavement construction methods shall conform to 502.03.F of the MDOT 2003 Standard Specifications for Construction.

3.03 LINE AND GRADE

- A. The contractor shall be responsible to provide construction layout to establish the line and grade from the construction plans.

3.04 BOND COAT APPLICATION

- A. The bond coat shall be applied with a pressure distributor and applied uniformly to horizontal and vertical surfaces abutting new HMA pavement at a rate of 0.10-gallons per square yard.
- B. The bond coat shall be applied sufficiently in advance of the laying of the wearing surface to permit drying but shall not be applied so far in advance or over such

an area as to lose its adhesiveness as a result of being covered with dust or other foreign material. Suitable precautions shall be taken by the Contractor to protect the surface while the bond coat is drying and until the wearing surface is applied.

3.05 GENERAL TRANSPORTING, SPREADING AND FINISHING

- A. Section 502 of the MDOT 2003 Standard Specifications for Construction shall govern.

3.06 EQUIPMENT

- A. Section 502 of the MDOT 2003 Standard Specifications for Construction shall govern.

3.07 PLACING AND COMPACTION

- A. Section 502 of the MDOT 2003 Standard Specifications for Construction shall govern.
- B. Protect newly placed HMA after final rolling. Do not permit vehicular traffic on the asphalt pavement until it has properly cured, and in no case sooner than six hours after compaction.

3.08 MINIMUM QUALITY REQUIREMENTS

- A. Test the in-place HMA base, leveling, and surface courses for compliance with the requirements for density, thickness and surface smoothness. Take not less than 3 inches diameter pavement specimens of each completed course, as specified under Field Quality Control for in-place Work, from locations as directed by the testing Engineer. Repair holes from test specimens as specified for patching defective Work.
- B. Core pavement to determine in-place compacted thickness and compare to cross-sectional pavement detail on the plans. Any thickness less than plan is not acceptable and will require replacement of the asphalt with no additional payment. Test in-place density according to ASTM D-2950.
- C. Each HMA course shall be tested for smoothness, using a 10-foot straightedge applied parallel with and at right angles to centerline of paved area according to MTM 722. Surfaces shall not be acceptable if exceeding the tolerances set forth in Section 502 of the MDOT 2003 Standard Specifications for Construction.

3.09 EXISTING DRAINAGE

- A. Do not block road drainage. Maintain shoulders, gutters and ditches affected by construction operations to carry drainage flows.

3.10 TEMPORARY REPAIRS

- A. Where it is not feasible to replace pavements immediately after completion of the excavation and backfill, furnish and place crushed stone or gravel as required to maintain traffic until the pavement can be restored. Continuously maintain the temporary crushed stone or gravel surfaces in a smooth condition, free of potholes or ruts, until the permanent pavement is restored.
- B. Restore permanent pavement within 30 days after the existing pavement has been cut.

3.11 COLD MILLING

- A. Clean existing pavement surface of deleterious material immediately before cold milling.

- B. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.
- C. Mill to a uniform finished surface free of gouges, grooves, and ridges.
- D. Control rate of milling to prevent tearing of existing asphalt course.
- E. Repair or replace curbs, manholes, and other construction damaged during cold milling.
- F. Excavate and trim unbound-aggregate base course, if encountered, and keep material separate from milled hot-mix asphalt.
- G. Transport milled hot-mix asphalt to asphalt recycling facility.

3.12 PULVERIZING / BASE CRUSHING

- A. Work shall be performed in accordance with Section 305 of the MDOT 2003 Standard Specifications for Construction.
- B. Pulverized material shall be graded and shaped to match the grades shown on the plans, or to provide positive drainage towards a storm water collection area where grades are not provided.

3.13 HMA PATCHING / REPAIRS

- A. Vertically sawcut full depth and along straight lines around deteriorated pavement and into adjacent sound pavement.
- B. Remove deteriorated pavement without damaging sawcut edges and dispose of legally offsite. Damaged edges shall be re-sawcut.
- C. Repair or replace curbs, structures, and other construction damaged during pavement excavation.
- D. Use 21AA material as specified in Section 32 11 00 and recompact to bring aggregate base course to bottom of existing pavement section.
- E. Use appropriate mechanical or hand placement equipment to install HMA in lifts not to exceed 2" compacted in place.
- F. Patching / repair HMA material shall consist of appropriate base, leveling, and wearing course mixes, to be approved by the owner prior to installation.
- G. Install necessary leveling wedges in compacted lifts not exceeding 2 inches thick.
- H. Use hot-applied joint sealant to seal joints around pavement repair.

END OF SECTION