

**SPECIFICATIONS
AND
CONTRACT DOCUMENTS**

FOR THE

CITY OF EASTPOINTE

**2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING
DISTRICT 1**

AEW NO. 0145-0653

JANUARY 2022

OWNER:

**City of Eastpointe
23200 Gratiot Avenue
Eastpointe, Michigan 48021**

2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING
DISTRICT 1
AEW NO. 0145-0653
CITY OF EASTPOINTE

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ADVERTISEMENT FOR BIDS

CITY OF EASTPOINTE

2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING DISTRICT 1

AEW PROJECT NO. 0145-0653

RECEIPT OF BIDS

Due to the COVID-19 pandemic and the closure of City Hall to the public, the City of Eastpointe will receive electronic bid submittals **only** until 2:00 pm, local time on **Tuesday, January 25, 2022**. All bidders must submit its proposal, all attachments, and any modifications or withdrawals electronically through MITN. The bidder should submit all documents in a modifiable (native) format (examples include but are not limited to: Microsoft Word or Excel and Google Docs or Sheets). In addition to submitting documents in a modifiable format, the bidder must also submit copies of documents as a PDF. Bidder's failure to submit a proposal as required may result in disqualification. The proposal and attachments must be fully uploaded and submitted prior to the proposal deadline. **Do not wait until the last minute to submit a proposal.** MITN will not allow a proposal to be submitted after the proposal deadline identified in the solicitation, even if a portion of the proposal has been uploaded. **E-mailed bid submissions will NOT be accepted.**

Questions on how to submit information or how to navigate the MITN system should be referred to MITN. The Solicitation Manager will not provide assistance related to the submittal of the proposal and all attachments. Complete submission of the bid is the responsibility of the bidder.

DESCRIPTION OF WORK

Full Length CIPP of 12" Sanitary Sewers	3,900 LF
Full Length CIPP of 15" Sanitary Sewers	1,350 LF
Full Length CIPP of 18" Sanitary Sewers	2,100 LF
Full Length CIPP of 21" Sanitary Sewers	900 LF
Full Length CIPP of 24" Sanitary Sewers	500 LF

together with other related items of work as well as project deliverables.

PRE-QUALIFICATION

All CCTV Pre and Post Inspections shall be performed by a NASSCO Pipeline Assessment and Certification Program (PACP®) certified operator. All inspection reports shall be produced using (C.C.T.V.) inspection software provided by a NASSCO PACP® certified vendor. Formatting and layout, i.e., observations and defect codes, shall be NASSCO PACP® standard.

PLANS AND SPECIFICATIONS

Plans and Specifications may only be obtained at www.bidnetdirect.com starting **Monday, January 10, 2022**. Documents will only be available through the BidNetDirect site. Bids may be rejected unless made on the forms as included with the bidding documents.

BID SECURITY

A certified check, or the included Bid Bond, executed by the Bidder and a surety company, payable to the City of Eastpointe, in an amount at least equal to five percent (5%) of the bid, shall be submitted with each bid.

WITHDRAWAL OF BIDS

No bid may be withdrawn for a period of sixty (60) calendar days after the receipt of bids.

AWARD OF CONTRACT

The City of Eastpointe reserves the right to reject any or all bids and/or to waive any irregularities in the bidding. The successful Bidder will be required to furnish satisfactory performance, payment bonds and insurance certificates.

BY: CITY CLERK'S OFFICE
City of Eastpointe
23200 Gratiot Avenue
Eastpointe, Michigan 48021

DATED: JANUARY 2022

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACTS

Prepared by



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INSTRUCTIONS TO BIDDERS

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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.

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, after submitting its Bid and within five (5) days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:

A. An itemized list of the Bidder's equipment available for use on the proposed Contract.

B. A list of Bidder's key personnel who would be assigned to the Project, including their experience. Additionally, identify the likely project manager and superintendent responsible for making project decisions.

C. A listing of the major parts of the work which are proposed to be sub-let along with reference information for each subcontractor.

D. A proposed construction schedule based upon starting construction within ten (10) days of receiving the Notice to Proceed.

E. Such additional information that will enable the Owner to determine whether or not the Bidder is adequately prepared to fulfill the obligations of the Contract.

3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.04 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.
 - 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, 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, 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, if any, will be held at the time and location stated in the invitation or advertisement to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Attendance may be mandatory as stated in the Invitation or Advertisement to Bid. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda, mailed, delivered, sent via facsimile, or transmitted electronically, to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five (5%) 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 ten (10) days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and exercise its rights under the Bid Bond. 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 the bid acceptance period, 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, milestones, if any, are to be achieved and 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, if any, 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 various portions of 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, without an increase or Bid Price.
- 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 not 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.
- A. All blanks on the Bid Form shall be completed in ink 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 address and state of incorporation shall be shown.
- 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 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.

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- 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 Owner's office as identified in the Bid Form.

- 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 at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract 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

- 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 finds, after reasonable inquiry and evaluation, to not be responsible. 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.
- 19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder whose Bid is in the best interests of the Project.
- 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.
 - C. Bid prices will be compared after adjusting for differences in time of Substantial Completion (total number of calendar days to substantially complete the Work) designated by Bidders. The adjusting amount will be determined at the rate set forth in the Agreement for liquidated damages for failing to achieve Substantial Completion, or such other amount that Owner has designated in the Bid Form.
 - 1. The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form plus the product of the Bidder-specified time of Substantial Completion (in Calendar Days) times the rate for liquidated damages (in dollars per day).
- 19.04 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

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

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 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 10 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 ten 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 as stated in Paragraph 2.02 of the General Conditions.

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

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SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

These Supplementary Instructions to Bidders amend or supplement the Instructions to Bidders (No. C-200, 2002 Edition) as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Instructions to Bidders have the meanings stated in the General Conditions.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

I-3.01 Add the following new paragraph after I-3.01E:

Prequalification/Commercial Acceptance

In order to be considered Prequalified/Commercially Acceptable, the Product, Manufacturer, and Installer must each demonstrate, to the Owner's satisfaction, compliance with the following requirements:

1. For a Product to be considered as Commercially Acceptable, a minimum of 1000 line sections of successful wastewater collection system installation in viability. In addition, the Product shall have been in service within the wastewater collections system of the Owner (or some other city, township, or county within the State of Michigan) for a minimum of three years. The Product must be shown to comply with these instructions.
2. For a Manufacturer to be considered Commercially Acceptable, that Manufacturer must have provided continuously for at least five years, the materials for a Commercially Acceptable Product (as defined above). For purposes of determining Manufacturer qualification, the Commercially Acceptable Product may be the proposed rehabilitation materials by the Owner, or it may be some other pipeline rehabilitation method using a Commercially Acceptable Product. The Manufacturer must be able to demonstrate sufficient in-house engineering, support and manufacturing quality control. Furthermore, to ensure the long-term protection of the Owner, the Manufacturer shall submit three years audited financial data and must be financially sound by generally accepted accounting principles.
3. For an Installer to be considered as qualified, the Installer must have had at least five years active experience in the commercial installation of the Commercially Acceptable Product. In addition, the Installer must have successfully installed at least 100,000 linear feet of the Commercially Acceptable Product in wastewater collection system installations. These installations must have had a combined total of 1,000 successful internally reinstated lateral connections. In addition, the Installer must certify that the installation of the Commercially Acceptable Product will be done in accordance with Manufacturer's recommended procedures.
4. The Manufacturer and/or Installer has submitted, upon request by the Owner or the Engineer, responses to the information required in these instructions which are, in the sole opinion of the Owner and the Engineer, acceptable and provide satisfactory proof of compliance with these prequalification requirements.
5. Sewer rehabilitation products submitted for approval must provide Third Party Test Results supporting the long term performance and structural strength of the Product. Test samples shall be prepared so as to simulate installation methods and trauma of the Product. No Product will be approved without independent Third Party Testing verification.
6. The Manufacturer, the Product, and/or the Installer shall have ISO 9000 Certifications or equal verifying its quality control and assurance programs. Proof of Certification shall be required for approval.

The final decision to accept or reject the Product/ Manufacturer/Installer lies solely with the Owner.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

I-7.01 Amend the third sentence of Paragraph 7.01 to read as follows:

Questions received less than five days prior to the date for opening of bids may not be answered.

ARTICLE 15 – SUBMITTAL OF BID

I-15.01 Amend the last sentence to read as follows:

The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the following data:

- A. Statement of Qualifications Sheet.
- B. List of Proposed Subcontractors.
- C. List of Project References.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

I-19.06 Add the following new paragraphs immediately after Paragraph 19.05.

19.06 If, at the time that this contract is to be awarded, the selected bid exceeds the amount of funds available to finance the contract, the Owner reserves the right to delete portions of the project to produce a new amount which is within the limit of available funds.

BID FORM

CITY OF EASTPOINTE

2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING, DISTRICT 1

AEW PROJECT NO. 0145-0653

BID SUBMITTED BY: _____
Company Name

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

***City Clerk
City of Eastpointe
23200 Gratiot Avenue
Eastpointe, Michigan 48021***

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 sixty (60) 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 all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site, if any, and all drawings of physical conditions relating to existing surface or subsurface structures at the Site, if any, 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.
- K. Bidder is aware that the Owner's decision to proceed with the Project is subject to Owner's determination that all legal, financial and grant approvals, conditions and requirements have been received or met and the funding necessary to complete the project is in hand, and that if all of the foregoing has not been received, the Owner may elect not to proceed with the project in which case no bidder shall have a claim of any kind in contract, tort, equity or otherwise, against the Owner.
- L. Bidders acknowledge that Owner retains the unrestricted right not to proceed with the project and to reject all Bids received. In either case, Owner shall not be liable to any Bidder under any theory including contract, tort, equity or otherwise.
- M. Bidder acknowledges that the unexpected presence and location of existing underground utilities and resulting conflicts with such utilities are ordinarily encountered and generally recognized as inherent in subsurface sewer and appurtenant work in areas that have been previously developed.

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 anything 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

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

CITY OF EASTPOINTE
2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING, DISTRICT 1
AEW PROJECT NO. 0145-0653

<u>Item No.</u>	<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Bid Unit Price</u>	<u>Bid Price</u>
Base Bid					
1.	_Bonds, Insurance and Initial Set-Up Expense (3% Max)	1	LS	\$ _____	\$ _____
2.	_Sewer, Pre-Construction, Clean and CCTV, 12 inch	3,900	Ft	_____	_____
3.	_Sewer, Pre-Construction, Clean and CCTV, 15 inch	1,350	Ft	_____	_____
4.	_Sewer, Pre-Construction, Clean and CCTV, 18 inch	2,100	Ft	_____	_____
5.	_Sewer, Pre-Construction, Clean and CCTV, 21 inch	900	Ft	_____	_____
6.	_Sewer, Pre-Construction, Clean and CCTV, 24 inch	500	Ft	_____	_____
7.	_Sewer, CIPP, 12 inch, Full Length	3,900	Ft	_____	_____
8.	_Sewer, CIPP, 15 inch, Full Length	1,350	Ft	_____	_____
9.	_Sewer, CIPP, 18 inch, Full Length	2,100	Ft	_____	_____
10.	_Sewer, CIPP, 21 inch, Full Length	900	Ft	_____	_____
11.	_Sewer, CIPP, 24 inch, Full Length	500	Ft	_____	_____
12.	_Sewer, Post-Construction, CCTV, 12 inch	3,900	Ft	_____	_____
13.	_Sewer, Post-Construction, CCTV, 15 inch	1,350	Ft	_____	_____
14.	_Sewer, Post-Construction, CCTV, 18 inch	2,100	Ft	_____	_____
15.	_Sewer, Post-Construction, CCTV, 21 inch	900	Ft	_____	_____
16.	_Sewer, Post-Construction, CCTV, 24 inch	500	Ft	_____	_____
17.	_Cutting Service Lead Protrusions	15	Ea	_____	_____
18.	_Lateral, Preparation	25	Ea	_____	_____
19.	_Lateral, Reinstate	310	Ea	_____	_____

CITY OF EASTPOINTE
2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING, DISTRICT 1
AEW PROJECT NO. 0145-0653

<u>Item No.</u>	<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Bid Unit Price</u>	<u>Bid Price</u>
20.	_Mineral Deposit, Rem	100	Ea	_____	_____
21.	_Traffic Control, Major Street	1	LS	_____	_____
22.	_Traffic Control, Minor Street	1	LS	_____	_____
23.	_Deliverables	1	LS	_____	_____

Total of Base Bid: _____

Bidder acknowledges that (1) each Bid Unit 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 within 120 calendar days after the date when the Contract Times commence to run as provided in Article 4 of the General Conditions and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 150 calendar days after the date when the Contract Times commence to run.
- 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. Statement of Qualifications;
 - C. List of Proposed Subcontractors; and
 - D. Project References.

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.)

Title: _____

Attest: *[Signature]* _____

[Printed name] _____

Submittal Date: _____

Address for giving notices: _____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____

(where applicable)

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:

City of Eastpointe
23200 Gratiot Avenue
Eastpointe, Michigan 48021

BID

Bid Due Date:

Description: City of Eastpointe
2022 Sewer Rehabilitation By Full Length C.I.P.P. Lining, District 1
AEW Project No. 0145-0653

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
By: _____
Signature

Surety's Name and Corporate Seal
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.

STATEMENT OF QUALIFICATIONS

Bidder must answer all questions. If more space is needed to complete a question, attach a separate sheet. Bidder may submit any additional information.

Name: _____

Address: _____ Phone: _____

Number of years operating under your present name: _____

Bonding Capacity: _____

Bonding Company: _____ Phone: _____

General nature of work performed by your company _____

KEY PERSONEL:

<i>Name</i>	<i>Position</i>	<i>Years Experience</i>	<i>Years with Company</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

MAJOR EQUIPMENT:

<i>Equipment</i>	<i>Manufacturer</i>	<i>Model No.</i>	<i>No.</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

CURRENT PROJECTS UNDER CONTRACT:

<i>Project Name</i>	<i>Location</i>	<i>Contract Amt</i>	<i>Completion Date</i>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Additional information that may be pertinent to demonstrate your ability to complete this project.

Has your company defaulted on a contract?

If yes, where and why?

I hereby certify that the above answers are correct and true.

By: _____
Signature

Name

Title

Number of additional sheets attached_____

SUBCONTRACTOR LISTING

Bidder agrees to use the following Subcontractors for the performance of the work of their respective trades unless otherwise approved in writing by the Owner prior to signing of the Contract. Bidder is aware of the Subcontract Provisions.

<i>PORTRION OF WORK</i>	<i>NAME, ADDRESS & PHONE NO. OF CONTRACTOR</i>	<i>APPROXIMATE DOLLAR VALUE OF SUBCONTRACT</i>
_____	Name: _____ Address: _____ Phone: _____	_____
_____	Name: _____ Address: _____ Phone: _____	_____
_____	Name: _____ Address: _____ Phone: _____	_____
_____	Name: _____ Address: _____ Phone: _____	_____
_____	Name: _____ Address: _____ Phone: _____	_____
_____	Name: _____ Address: _____ Phone: _____	_____
_____	Name: _____ Address: _____ Phone: _____	_____
_____	Name: _____ Address: _____ Phone: _____	_____

PROJECT REFERENCES

Bidder has completed the following projects in the past 5 years of similar size and scope to this project.

Project: _____	Project: _____
Owner: _____	Owner: _____
Contact Person: _____	Contact Person: _____
Phone: _____	Phone: _____
Contract Amount: _____	Contract Amount: _____
Date Completed: _____	Date Completed: _____
Project: _____	Project: _____
Owner: _____	Owner: _____
Contact Person: _____	Contact Person: _____
Phone: _____	Phone: _____
Contract Amount: _____	Contract Amount: _____
Date Completed: _____	Date Completed: _____
Project: _____	Project: _____
Owner: _____	Owner: _____
Contact Person: _____	Contact Person: _____
Phone: _____	Phone: _____
Contract Amount: _____	Contract Amount: _____
Date Completed: _____	Date Completed: _____

**AGREEMENT
BETWEEN OWNER AND CONTRACTOR FOR
CONSTRUCTION CONTRACT (STIPULATED PRICE)**

Prepared by



Issued and Published Jointly by



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Paragraph 15.06 of the General Conditions within 150 calendar days after the date when the Contract Times commence to run.

4.03 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. Substantial Completion: Contractor shall pay Owner \$1,000.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$1,000.00 for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

4.04 Special Damages

- A. In addition to the amount provided for liquidated damages, Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.
- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.
- B. Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities): _____
_____.
- B. The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Engineer shall prepare recommendations for Payment in accordance with Article 15 of the General Conditions.

6.02 Progress Payments; Retainage

- A. Owner shall make Progress Payments on account of the Contract Price on the basis of Engineer's Recommendation for Payment during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. Ninety (90%) percent of Work completed (with the balance being retainage), if the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage.

6.03 Final Payment

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 - INTEREST

- 7.01 All amounts not paid when due shall bear interest in accordance with the provisions of Act 524 of the Michigan Public Acts of 1980.

ARTICLE 8 - CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
- B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions, if any, 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. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract 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 Contractor; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor 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 Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 8, inclusive).
 - 2. Performance bond (pages 1 to 3, inclusive).
 - 3. Payment bond (pages 1 to 3, inclusive).
 - 4. Maintenance and Guarantee bond (pages 1 to 2, inclusive).
 - 5. General Conditions (pages 1 to 66, inclusive).
 - 6. Supplementary Conditions (pages 1 to 9, inclusive).
 - 7. General Requirements.
 - 8. Specifications as listed in the table of contents of the Project Manual.
 - 9. Drawings (not attached but incorporated by reference) consisting of 11 sheets with each sheet bearing the following general title: 2022 Sewer Rehabilitation By Full Length C.I.P.P. Lining, District 1, AEW Project No. 0145-0653.
 - 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages 1 to 6, inclusive).
 - b. Statement of Qualifications (pages 1 to 2, inclusive)
 - c. Subcontractor Listing
 - d. Project References
 - 11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Contract Modifications.
 - c. Contract Notifications.
 - d. Work Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 Assignment of Contract

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract 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.

10.06 Other Provisions

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

CITY OF EASTPOINTE

By: _____

By: _____

Title: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

City of Eastpointe

23200 Gratiot Avenue

Eastpointe, Michigan 48021

License No.: _____
(where applicable)

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

PERFORMANCE BOND

CONTRACTOR *(name and address):*

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

OWNER *(name and address):*

City of Eastpointe
23200 Gratiot Avenue
Eastpointe, Michigan 48021

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):* 2022 Sewer Rehabilitation By Full Length C.I.P.P. Lining, District 1
City of Eastpointe
AEW Project No. 0145-0653

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:

PAYMENT BOND

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:

City of Eastpointe
23200 Gratiot Avenue
Eastpointe, Michigan 48021

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*: 2022 Sewer Rehabilitation By Full Length C.I.P.P. Lining, District 1
City of Eastpointe
AEW Project No. 0145-0653

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

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 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;
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.

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.

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:

MAINTENANCE AND GUARANTEE BOND

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

City of Eastpointe

23200 Gratiot Avenue

Eastpointe, Michigan 48021

CONTRACT

Date:

Amount:

Description (Name and Location): 2022 Sewer Rehabilitation By Full Length C.I.P.P. Lining, District 1
City of Eastpointe
AEW Project No. 0145-0653

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Maintenance and Guarantee Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title

SURETY

(Seal)

Surety's Name and Corporate Seal

By:

Signature and Title

(Attach Power of Attorney)

Attest:

Signature and Title:

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)

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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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 Request*~~—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-Contract Modification*~~—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. **Cut-Off Date - The last date for which constructed work will be considered for compensation in the upcoming Progress Payment. This date will be determined at the Pre-Construction Conference.**
19. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
20. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
21. *Engineer*—The individual or entity named as such in the Agreement.
22. *Field Work 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.
23. *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.

24. *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.
25. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
26. *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.
27. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
28. *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.
29. *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.
30. **Progress Payment – Payments made by the Owner, upon Engineer's recommendation, to the Contractor for the completed portions of the Work.**
31. *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.
32. *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.
33. *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.
34. *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.
35. *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.
36. *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.
37. *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~~ Progress Payment.

38. *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.
39. *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.
40. *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.
41. *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.
42. *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.
43. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *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.
46. *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.
47. *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.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.

49. *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.
50. *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 up to 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 (if requested) 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 ~~Application for Payment~~ Progress Payments, 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. **Within 10 days following the Pre-Construction Conference, the Contractor shall make any corrections and adjustments and resubmit the schedules. No progress payments shall be made to the Contractor until acceptable schedules are submitted to the 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).
2. **The provisions of the Contract Documents, written and prepared by or for the Engineer shall take the following order of precedence in resolving conflicts, errors, ambiguities, or discrepancies between such provisions of the Contract Documents:**
 - a. **Agreement**
 - b. **Addenda**
 - c. **Special Provisions**
 - d. **Project Plans and Drawings**
 - e. **Standard Detail Sheets**
 - f. **Supplementary Specifications**
 - g. **Standard Specifications**
 - h. **General Requirements**
 - i. **Supplementary Conditions**
 - j. **General Conditions**

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, benchmarks, and alignment and grade stakes for construction which, in the Engineer's judgment, are necessary to enable Contractor to proceed with the work. Contractor shall be responsible to preserve and protect the reference points, benchmarks, and alignment and grade stakes during the work. Reference points, benchmarks, and alignment and grade stakes damaged, destroyed, removed, or disturbed by the Contractor will be reestablished by the Engineer at the Contractor's expense.**

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. **DELETED**
- 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. **Contractor shall provide written evidence from the Property Owner, allowing the use of additional lands.**

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~~ Contract Modification.
 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.
- 3. **“reasonable accuracy,” as referenced in Article 5.05, shall mean that the actual centerline location of the utility is within three (3) feet of the Underground Facility shown on the Plans or marked in the field.**
- 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~~ Contract Modification.
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 maintenance and guarantee bond in an amount at least equal to the Contract Price. The maintenance and guarantee bond shall remain in effect for two years after the date of the final payment.** ~~Contractor shall also furnish each 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. **Additionally, all Surety companies providing bonds as required by the Contract shall have an A.M. Best Rating of A-VII or better.**
- 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~~ Contract Modification, 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 Work Order or a proposed ~~Change Order~~ Contract Modification 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~~ Contract Modification 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. **Deleted.**
- 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~~ Contract Modifications, Work Change Directives, ~~Field Orders~~ Work 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~~ Work 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 Work 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 ~~Contract Modification~~.
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~~ Contract Modifications, 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*~~ *Contract Modifications*

- A. Owner's responsibilities with respect to ~~*Change Orders*~~ *Contract Modifications* 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~~ Contract Modifications 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~~ Contract Modifications is set forth in Article 11.
- D. Engineer's authority as to ~~Application for Payment~~ Progress Payments 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-Contract Modification~~, a Work Change Directive, or a ~~Field Work Order~~.
- 1. ~~Change Orders-Contract Modification~~:
 - 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-Contract Modification~~. A ~~Change Order-Contract Modification~~ 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-Contract Modification~~.
- 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-Contract Modification~~, 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-Work 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-Work Order~~ and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a ~~Field-Work 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~~ Contract Modification, 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~~ Contract Modification. 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 **except no fee shall be applied to equipment**;
 - 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~~25 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~~ **Contract Modification**. 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 Order~~Contract Modifications*

- A. Owner, **Engineer**, and Contractor shall execute appropriate ~~Change Orders~~ Contract Modifications 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~~ Contract Modification 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~~ Contract Modification 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~~ Contract Modification, 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~~ Contract Modification, 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~~ Contract Modification 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. Timely notice shall be deemed as two (2) working days prior to needing inspection 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~~ Contract Modification. 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, **or an unsafe or emergency situation if declared by the Owner**, 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, if any, 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 and 15.01B. ~~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~~ Payment Requests:
 - 1. **On a monthly basis and in accordance with the schedule established at the Preconstruction Conference, the Engineer will prepare a Construction Estimate for the number of units constructed through the Cut-Off Date. If the Contractor requests payment for 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 Contractor shall submit 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 or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.**
 - 2. **The number of units to be paid on each Construction Estimate will be compiled from the Construction Observer's Daily Reports for the work completed.**
 - 3. **The amount of retainage with respect to Progress Payments will be as stipulated in the Agreement.**
 - 4. **Prior to the date established in the Agreement for the progress payments (but not more than once per month), the Engineer will forward to the Owner, with a copy to the Contractor, a Recommendation for Payment accompanied by the Construction Estimate.**
 - 5. **The Contractor, within 14 days of the receipt of the Recommendation of Payment, shall notify the Engineer in writing of any discrepancies. Within seven days of the receipt of the Contractor's notification, the Engineer and the Contractor shall**

attempt to resolve the discrepancies. Any corrected units of work will be adjusted on subsequent progress payments.

C. Review of Applications:

1. **Deleted.**
2. Engineer's recommendation ~~of any for 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~~ payment request 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~~ Contract Modifications;
 - 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. **Thirty (30)** ~~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~~ Contract Modifications;
 - 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. **The Contract Price has been reduced to offset expenditure of funds for Construction Observations paid by Owner.**
 - m. 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—Contractor~~ shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities ~~upon Owner's sue of occupancy of the work. until final acceptance 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 Payments~~ payment requests 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 Request:

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 request for final Application for Payment 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 payment request 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-request~~ for ~~Payment-payment~~, indicate in writing Engineer's recommendation of final payment and present the ~~Application for Payment~~ final payment request 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~~ payment request 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~~ payment request.

- 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~~ two years after the date of final payment ~~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~~ two years 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~~ adjustment 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~~ Contract Modification. 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

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ARTICLE 1 – 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 2 – PRELIMINARY MATTERS

SC-2.01 Delete Paragraphs 2.01 B. and C. in their entirety and insert the following in their place:

- B. Evidence of Contractor's Insurance: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner and Engineer copies of the policies of Insurance (including all endorsements and identification of applicable self-insured retention and deductibles) required to be provided by Contractor in Article 6. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. Evidence of Owner's Insurance: After receipt from Contractor of the executed counterparts of the Agreement and all required bonds and insurance documentation. Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner under Article 6 (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.02 *Commencement and Progress of Work*

SC 4.02 Delete Paragraph 4.02 in its entirety and insert the following:

The contract times will commence to run after a Notice to Proceed is issued no earlier than August 5, 2020. No work shall be done at the site prior to such date.

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

SC-5.06 Hazardous Environmental Conditions

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.03 Contractor's Liability Insurance

SC-6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

- K. 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. of the General Conditions:
 - a. State: Statutory
 - b. Applicable Federal (e.g., Longshoreman's): Statutory
 - c. Employer's Liability: \$1,000,000
 - 2. Contractor's Commercial General Liability under Paragraph 6.03.B and paragraph 6.03.C of the General Conditions. The Contractor shall procure and maintain during the life of this contract, Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than \$3,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent, if not already included; (E) Deletion of all Explosion, Collapse, and Underground (XCU) Exclusions, if applicable.
 - 3. Automobile Liability under Paragraph 6.03.D of the General Conditions. The Contractor shall procure and maintain during the life of this contract Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, with limits of liability not less than \$3,000,000 per occurrence combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

4. Additional Insured: Paragraph 6.03.G shall be replaced with the following:

Commercial General Liability and Motor Vehicle Liability, as described above, shall include an endorsement stating that the following shall be **Additional Insureds: The City of Eastpointe, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof, and Anderson, Eckstein and Westrick, Inc.** It is understood and agreed by naming the City of Eastpointe and Anderson, Eckstein and Westrick, Inc., as additional insured, coverage afforded is considered to be primary and any other insurance the City of Eastpointe and Anderson, Eckstein and Westrick, Inc. may have in effect shall be considered secondary and/or excess.

5. Cancellation Notice: Paragraph 6.03.I.3 shall be replaced with the following:

Workers' Compensation Insurance, Commercial General Liability Insurance, and Motor Vehicle Liability Insurance, as described above, shall include an endorsement stating the following: "It is understood and agreed that Thirty (30) days, Ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-renewal, Reduction, and/or Material Change shall be sent to: (Mr. Randall S. Blum, City of Eastpointe, 23200 Gratiot Avenue, Eastpointe, MI 48021).

SC-6.04 Owner's Liability Insurance

SC-6.04 Delete paragraph 6.04 in its entirety and insert the following:

- A. In addition to the insurances required under paragraph 6.03, the Contractor shall also provide, at Contractor's expense, Owner's Protective Liability insurance to protect the owner against claims which may arise from operations under the Contract documents, including costs of defense from all claims.
- B. The limits of liability for the insurance required by paragraph 6.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by laws and regulations.
1. Owner's and Contractor's protective liability:
- a. General Aggregate: \$3,000,000
- b. Each Occurrence: \$3,000,000
- C. The Owner's and Contractor's Protective Liability Insurance Policy shall include, as additional named and insured, all persons or entities listed in Paragraph SC-6.03.K.4.

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 “ all Work at the Site shall be performed during regular working hours, 7:00 AM through 7:00 PM. Contractor will not perform Work on a Sunday, or any legal holiday.”

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

SC-10.03 *Project Representative*

SC-10.03 Add the following new paragraph immediately after Paragraph 10.03.A:

- B. The Engineer is the designated Resident Project Representative (RPR) at the Site and will act as the Owner’s Representative.
 - 1. General: RPR's dealings in matters pertaining to the Work in general shall be with Owner and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor.
 - 2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values (if any) prepared by Contractor for 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 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 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 when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer or Owner.

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 Owner of availability of Samples for examination.
 - c. Advise Owner 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.
7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications. 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 in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Owner and Contractor 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 Owner and Contractor 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.
 - b. Observe, record, and report to Owner 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 Contract Modification, Work 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.

- 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. Draft and recommend proposed Contract Modifications, Work Change Directives, and Work Orders. Obtain backup material from Contractor.
- b. Immediately notify Owner 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 payment requests with Contractor for compliance with the established procedure for their submission and forward with recommendations to Owner, 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.

14. Completion:

- a. Participate in 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 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 Owner 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) without Owner’s concurrence.
 - 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.

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) The equipment and machinery rental rates shall be computed as outlined in the MDOT "2012 Standard Specifications for Construction", Section 109.05 "Payment for Contract Revisions".

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 10 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 20 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 Change Proposal, 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.

GENERAL REQUIREMENTS

ARTICLE 1 – GENERAL

1.01 Purpose

These General Requirements are supplemental to and form a part of the Contract herewith attached. They are intended to describe the general, quality and site control requirements to complete the Work specified. The General Requirements are further intended to cover the common phases of infrastructure construction according to the Contract Documents.

To safeguard the interests of the Owner, the Contractor will take all measures not specifically enumerated herein, but which conform to commonly accepted industry practices to secure the desired result. To further guard the Owner, all essentials of good practice in hiring, performing the Work, installation, protecting the Work and in the protection of individuals and property, whether enumerated herein or not, shall be followed.

1.02 Included Items

All labor, equipment, and materials necessary to perform the Work shall be considered as part of the Contract. Any items of work not specifically called for in the Contract Documents, but which are clearly necessary, are to be included at no increase in Contract Price.

1.03 Governing Standards

All materials, methods of construction, and testing shall conform to the current edition, at the time and date of Bid Opening, of the following governing standards, specifications and practices: American Association of State Highway Transportation Officials (AASHTO), American Concrete Institute (ACI), Americans with Disabilities Act Access Guidelines (ADAAG), American National Standards Institute (ANSI), American Standards Association (ASA), American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), American Welding Society (AWS), American Water Works Association (AWWA), Concrete Pipe Association of Michigan (CPAM), Michigan Department of Transportation (MDOT) Standard Specifications for Construction, Michigan Occupational Safety and Health Administration (MIOSHA), the Michigan Manual of

Uniform Traffic Control Devices (MMUTCD), National Association of Sewer Service Contractors (NASSCO), National Clay Pipe Institute (NCPI), Public Rights-of-Way Accessibility Guidelines (PROWAG), and Occupational Safety and Health Administration (OSHA).

In interpreting any specification or standard referred to, terms such as “Purchaser”, “Owner”, and the like shall be understood to mean the Owner and terms such as “Manufacturer,” “Supplier,” and the like shall mean the Contractor, as defined in the General Conditions.

In the event of conflict within governing standards referenced above, the most restrictive standard, as determined by the Engineer, will govern.

1.04 Audio-Visual DVD Record of Site

A. Purpose

The purpose of the audio-visual record of construction area is to accurately document the existing condition of the surface features within the construction area zone of influence prior to construction. When requested, the Contractor shall furnish the Owner a complete, color, audio-visual record in accordance with these specifications.

B. Qualifications

The audio-visual record of construction area shall be performed by a responsible commercial firm known to be qualified and regularly engaged in the business of color audio-visual construction documentation. The firm shall furnish such information as the Owner and/or Engineer deems necessary to determine ability to produce professional quality video in accordance with this specification.

The Contractor shall provide all labor, equipment, and materials necessary to provide a complete audio-visual record of the construction area in accordance with this specification.

C. Scheduling

No equipment or material shall be placed or delivered to the construction area prior to performing the audio-visual recording and submittal of all deliverables to the Owner.

The audio-visual recording shall be done during a time of good visibility. No recording shall be done during periods of visible precipitation or when more than ten percent (10%) of the ground area is covered with snow, unless authorized in writing by the Owner.

The Contractor shall notify the Owner seventy two (72) hours prior to any scheduled recording on private property. The Owner shall notify affected property owners of scheduled recording and request permission. If permission is denied, Contractor shall immediately notify the Owner. The audio-visual record log shall note where permission for entry onto private property was requested and not obtained thereby limiting access to public ROWs only.

D. Coverage

The audio-visual coverage shall include all surface features located within the construction zone of influence. The construction zone of influence shall be defined as follows:

1. the area within any permanent and temporary easements and the areas adjacent to these easements which may be affected by routine construction operations;
2. the area within all road ROWs and the areas adjacent to these ROWs which may be affected by routine construction operations; and
3. as directed by the Owner.

The surface features within the construction zone of influence shall include, but not be limited to, all visible existing pavement, roadways, driveways, sidewalks, curbs, ditches, culverts, utility structures (manholes, gate wells, hydrants, catch basins, cleanouts, curb stop valves, etc.), landscaping, trees, shrubbery, fences, headwalls, retaining walls, and buildings. Of particular concern shall be the existence and location of any faults, fractures, and defects.

Houses and buildings shall be identified visually by address, when visible, in such a manner that structures of the proposed system (i.e., manholes on a sewer system & gate wells and hydrants on a water system) can be located by reference. In all instances, however, location shall be identified by audio and visual means at intervals not to exceed 100 linear feet in the general direction of travel.

Areas which lie within the construction zone of influence and which are accessible by conventional wheeled vehicles shall be recorded on both sides of the ROW, easement, or street.

The Owner shall have the authority to designate areas to be added or omitted from audio-visual coverage.

E. Performance

All video shall be mastered in a high resolution digital format. Recording on VHS and transferring to DVD is not permitted.

To preclude the possibility of tampering or editing in any manner, all video must continuously display transparent digital information germane to the current video image. This information must be electronically incorporated through the original recording device.

The date and time of recording shall be continuously displayed in the upper left corner of the video. The time information shall consist of real time hours and minutes, separated by colons (i.e. 10:38 a.m.). The date information will include the month, day, and year and be placed directly below the time information (i.e. 10/5/10).

Global Positioning System (GPS) location by Differential GPS Satellites shall be displayed in the bottom center of the video. GPS location shall update once per second at five (5) meter or less positional accuracy. GPS location display will be at one tenth (1/10) arcsecond longitude and one tenth (1/10) arcsecond latitude (i.e. N41°40'52.9" W83°17'30.2").

Information to assist the viewer's orientation will appear directly below the GPS location display. This information should be limited to one (1) line of text and be sufficient allow a viewer to quickly identify the general location within the project area (i.e. "Esmt between First and Second", "Main St. – North ROW", "54321 Lincoln Ave", etc.).

Accompanying the video recording shall be a corresponding and simultaneously recorded audio track containing the commentary of the camera operator. The commentary shall assist in the maintenance of viewer orientation, identification of surface features, and objective description of the points of interest being shown on the video image. Of particular concern shall be the existence and location of any faults, fractures, and defects.

The distance from the camera lens to the ground shall be between eight (8) and ten (10) feet to ensure proper perspective. Vehicles used to

perform the audio audio-visual record shall be plainly marked with Contractor name and phone number. Contractor is responsible for traffic maintenance and control.

The rate of speed in the general direction of the conveyance used during recording shall not exceed forty eight (48) feet per minute. Panning and zoom rates shall be electronically or manually controlled to provide clear viewing during playback.

In some instances, audio-visual coverage will be required in areas not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the Engineer.

F. Deliverables

The Contractor shall furnish to the Owner two (2) copies of the complete audio-visual record of the construction area. The complete audio-visual record of the construction area shall consist of the audio-visual record logs, the audio-visual recording of the construction area, and an edited set of the construction drawings.

The audio-visual record log shall accurately catalog the contents of each DVD. A separate log shall be created for each DVD. Each log shall include the following information in the title/header section: Owner, Project name, AEW project number, date of recording and unique DVD number. Additionally, each log shall include the following information for each individual segment:

1. Reference construction drawing sheet number;
2. Street name, easement description, or address;
3. Travel direction;
4. Real time code indexing for each individual segment, indicating hours, minutes and seconds to cross reference with playback equipment to locate specific points of interest on the project;
5. Camera viewing direction
6. Starting location – description, GPS location and approximate engineering stationing;
7. Ending location – description, GPS location and approximate engineering stationing.

Each individual segment must be intuitively delineated using intersections, addresses, landmarks, or in the absence of more distinguishing features, GPS location display. Examples of acceptable segment delineation include:

- North Main Street ROW from Seventh Ave to Eighth Ave;
- East Oak Street ROW from DTE Corridor to County Drain;
- South Lincoln Ave ROW from 54001 Lincoln to 54999 Lincoln;
- Water Main Easement from Washington Elementary to Second Street.

If GPS location display is used to delineate segments, each segment shall include no more than 500 linear feet.

The audio-visual recording of the construction area shall be furnished on new, premium quality, single sided DVD(s) in individual DVD case(s). If multiple DVDs are required to furnish the audio-visual recording of the construction area, each DVD will be assigned a unique number. DVD(s) must be of an “authored” format which can be played and viewed in a consumer available DVD player and personal computer (DVD-R, MPEG-2, uncompressed). Video shall be NTSC-525 format with 525 horizontal lines per frame, 60 fields per second and 30 frames per second (fps).

The DVD(s) shall have chapters, or tracks, set at five (5) minute intervals to facilitate viewer navigation.

The DVD(s) must not contain any copy protection. The Owner and Engineer must be able to make copies of the recording from the DVD to VHS, Video-CD, or additional DVDs.

All DVD(s) and DVD cases shall be labeled with applicable project information and be cross referenced to audio-visual record logs. Information on the label shall include:

1. Unique DVD number
2. Owner
3. Project name
4. AEW project number
5. Date of recording
6. “Owner’s copy” or “Engineer’s copy”, as applicable.

An edited set of the construction drawings shall include the complete engineering plan set edited by the Contractor. Edits shall consist of delineating the points of beginning and ending of each individual segment, notation of unique DVD number of each individual segment, and an arrow indicating direction of travel for each individual segment. Edits shall be legibly written in red ink.

G. Acceptance

The Owner shall have the authority to reject all or any portion of the audio-visual record not conforming to these requirements.

ARTICLE 2 – QUALITY

2.01 Observation of Materials & Work to be Performed

Each bidder shall enter, as the “Estimated Quantity” of Construction Observation (when called for in the Basis of Bid), the number of “Crew Days” he will require for completion of the project. This number shall then be multiplied by the unit price for Construction Observation and the extension entered as the “Bid Price” for this item of work. The basis of computing crew days shall be based upon the Observer’s time as follows:

¼ crew day for each 2 hour increment or part thereof.

“Crew Days” as referred to above shall be computed for any one operation that requires a full time Construction Observer. The number of Observers required shall be as determined by the Engineer. Construction operations requiring full time Construction Observation are generally defined as follows:

A. General

1. Placement of traffic control devices.
2. Material testing and checking. (Services performed by a testing laboratory not included).
3. Observation of constructed appurtenances can be performed by the same Observer of the primary construction provided that both operations are in close proximity of each other and further provided that the Contractor cooperates to the extent that the Observer is informed, in advance, of the intent to construct the appurtenances and that no work be covered prior to the Observer having viewed the work performed. Proximity shall mean a DISTANCE NOT TO EXCEED 1000 FEET.

B. Paving

1. Site preparation, excavation and paving.
2. Sawing and sealing.
3. Sidewalks, trails & aggregate surfaces.

C. Water Systems

1. Site preparation, excavation, bedding, pipe installation/repair and backfill.
2. Tunneling, jacking and boring operations.
3. Installation and construction of appurtenances. (See General)
4. Pressure testing and disinfecting.

D. Sewer and Drains

1. Site preparation, excavation, bedding, pipe installation/repair and backfill.
2. Tunneling, jacking and boring operations.
3. Construction of appurtenances. (See General)
4. Infiltration, exfiltration and /or low pressure air testing. (as required)
5. Cleaning operations.
6. CCTV inspection.

E. Structures

1. Excavating and shaft construction.
2. Placement of forms and re-steel.
3. Placement of concrete.
4. Backfilling around structures.
5. Installation and testing of equipment.

F. Restoration

Restoration of all areas disrupted by the Contractor’s construction activities.

On pay estimates the actual number of “Crew Days” accumulated, up to the estimated quantity bid, will be entered and extended. This amount will be deducted from the pay estimate and retained by the Owner for Construction Observation services performed.

If the Contractor completes the Work using fewer “Crew Days” than the number stated in their Basis of Bid, the final payment shall include, in addition to the balance due him for the items of work completed, an amount equal to the number of unused “Crew Days” multiplied by the unit price for “Crew Days” as stated in the Basis of Bid.

If the Work under the Contract is incomplete when the Contractor has expended the number of “Crew Days” stated in their Basis of Bid, subsequent payments to the Contractor shall include a deduction equal to the number of excess “Crew Days” multiplied by the unit price for “Crew Days” as stated in the Basis of Bid.

The Contractor should note that the Observer's time, as used to compute "Crew Days", is measured from Portal to Portal.

If by Contract Modification, the quantity of Work under the Contract varies significantly from that stated in the Basis of Bid; the number of "Crew Days" shall be increased or decreased, as appropriate, in said Contract Modification. If the Contract Modification contains no increase or decrease in the number of "Crew Days" of Construction Observation, then no adjustment is to be made in the number of "Crew Days" stated in the Basis of Bid.

The Contractor shall give the Engineer at least 48 hours' notice, exclusive of Saturdays, Sundays or holidays, when the project will have an increase or decrease in the number of Contractor crews that will be performing work on the project so the Engineer can determine if an increase or decrease in the number of Construction Observers is required.

2.02 CCTV Inspection (Post-Const.)

The Contractor shall provide for closed circuit television (CCTV) inspection of all installed sewers. All installed sewers shall be cleaned, by and at the Contractor's expense, immediately prior to CCTV inspection to ensure the sewers are free of debris. The inspection shall be performed in accordance with the current guidelines of the National Association of Sewer Service Companies (NASSCO) and performed by a NASSCO Pipeline Assessment and Certification Program (PACP ©) certified operator. All CCTV inspection shall be witnessed by the Owner and the Contractor. Any CCTV inspection performed in the absence of the Owner will be rejected. The CCTV Inspection shall not be performed if there is any fog or other adverse conditions within the sewer that may impair visibility.

All CCTV inspection shall be recorded on new, premium quality, single-sided DVD(s) on which sound and colored video information shall be recorded and turned over to the Owner. DVD shall be of an "authored" format capable of being viewed in a standard DVD player commonly available (DVD-R, MPEG-2). Display frame rate shall be 30 in National Television System Committee (NTSC) format. Each manhole to manhole section shall be on a separate track. The DVD shall include a menu listing section number, street number, manhole numbers, direction of flow and total footage. Selection of an individual inspection section shall

occur through this menu. The DVD shall not contain any copy protection. The Owner shall be able to make copies of the footage to additional VHS tape, DVD, or video-CD. All DVD's shall be correctly labeled and titled with the project name and number, and reference DVD number. The Contractor shall provide a DVD log containing a table of contents with the project name, number and reference to the contents of each DVD.

The color CCTV camera used for the inspection shall be one specifically designed and constructed for such inspection. The pan and tilt camera shall be operative in 100% humidity conditions, and have a high resolution lens capable of scanning 360-degrees circumference and 270-degrees on a horizontal axis to televise sewers and service connections. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera, television monitor, and other components of the video system shall be capable of producing picture quality to the satisfaction of the Owner.

The investigation shall involve visual observation showing the running footage, manhole to manhole section and street or easement at all times on screen in all recordings. The investigation shall be performed at a rate of speed which will allow examination of each manhole, all points of infiltration, cracked or crushed pipe, defective joints, misalignment in line or grade and location of wye openings. As part of the CCTV inspection, all manholes shall be panned to show any and all connections along with its overall condition, the precise locations of each wye and any problems areas. These locations shall be entered on the investigation forms supplied by the Contractor.

The project name, date, time, footage counter and structure to structure section shall be displayed continuously. The camera shall be moved through the sewer in either direction at a rate of speed not to exceed thirty feet (30') per minute, stopping when necessary to permit proper documentation of the sewer's condition. The camera shall be stopped immediately adjacent to all points of infiltration, cracked or broken pipe, defective joints, misalignment in line or grade and location of service connections. The camera shall be rotated to allow viewing of the problem area or into the service connection. Manual winches, power winches, TV cable and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line.

A report detailing all notes, wye locations, and other pertinent information shall be made as a part of the CCTV inspection in accordance with NASSCO's PACP ©. The report shall be produced using CCTV inspection software provided by a NASSCO PACP © certified vendor. All CCTV reports shall be downloaded or recorded on board the CCTV vehicle. Formatting and layout, i.e., observations and defect codes shall be NASSCO PACP © standard.

If camera or other equipment becomes seized in a sewer and excavation is required to retrieve the equipment, all excavation, material, backfill and restoration shall be completed at no additional cost to the Owner.

Upon completion of the Work, Contractor shall submit two (2) copies of all DVD(s) along with one (1) digital copy and two (2) color copies of inspection reports, with table of contents, in tabbed, three (3) hole punched binders, to the Owner upon completion of the CCTV inspection. The DVD(s) shall be recorded or edited such that the sewer lines are recorded in consecutive order starting at the downstream manhole and proceeding upstream as shown on the plans. Report(s) shall follow in the same order as the DVD(s). The following information shall be recorded on the reports:

- A. Date
- B. Pipe size, length, material and shape
- C. Engineer or Construction Observer
- D. Owner
- E. Project Name and Number
- F. Location of recording
- G. Upstream and downstream manhole numbers, address of closest house
- H. Camera direction
- I. Direction of flow
- J. Wye location by station quadrant and condition
- K. Type of pipe (sanitary, storm, combined, process, force main)
- L. Type of joint and length between joints
- M. Manhole condition
- N. Drop from manhole rim to invert of sewer
- O. Cross section or profile of sewer
- P. Plan view of sewer and laterals
- Q. Camera operator and PACP © Certification Number
- R. Defects; station, quadrant, type, severity

Any defects noted during CCTV inspection shall be satisfactorily repaired or replaced, by and at the Contractor's expense, and witnessed by the Owner.

Defects shall include, but not be limited to failing low pressure air testing, exceeding infiltration limits, cracked or broken pipe, defective joints, misalignment in line or grade, and visible leaks or infiltration. Additional testing and CCTV inspection shall be performed at each affected segment, from manhole to manhole, subsequent to repair and/or replacement.

ARTICLE 3 – SITE CONTROL

3.01 Project Site

A. Field Offices and Sheds

The use of field offices and/or sheds is not required unless otherwise specified. If the Contractor wishes to use a field office and/or shed, the Contractor shall provide and maintain such facilities at no cost to the Owner. The location, occupancy and use of field offices and/or sheds shall be approved by the Owner.

B. Site and Road Cleanliness

The Contractor shall keep clean all roads used in performance of the Work. Trucks hauling excavated materials, concrete, sand, stone, or other loose materials from or to the site, shall be trimmed and covered to prevent spillage. The Contractor shall be held responsible for Supplier and Sub-Contractor compliance.

If, in the opinion of the Owner or Engineer, cleanliness of the site and adjacent areas impacted by the Work is not progressing in a reasonable manner, Owner and Engineer shall have the right to direct the Contractor to perform corrective action immediately. In the event the Contractor does not immediately perform corrective action, the Owner may order any or all other operations of the Contractor, under this Contract, to cease until the cleanliness of the Work is proceeding in an acceptable manner. Further, if the Contractor fails to perform corrective action immediately, the Owner may perform such work at the Contractor's expense.

C. Dust Control

All sites, access roads, haul roads, detour roads, and other public and private roads, driveways and parking lots used by the Contractor 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 regulatory agency having jurisdiction.

Such dust control materials shall be applied as often as is necessary to control the dust.

If, in the opinion of the Owner or Engineer, the Contractor fails to provide adequate dust control, Owner and Engineer shall have the right to direct the Contractor to perform corrective action immediately. In the event the Contractor does not immediately perform corrective action, the Owner may order any or all other operations of the Contractor, under this Contract, to cease until dust is controlled in an acceptable manner. Further, if the Contractor fails to perform corrective action immediately, the Owner may perform such work at the Contractor's expense.

D. Noise Control

The Contractor shall comply with all local ordinances pertaining to noise control. Additionally, the Contractor shall employ commonly accepted noise control measures including, but not limited to: adherence to the allowable working hours, use of insulated generators, proper handling of equipment and materials, and consideration of businesses and residential dwellings in the placement of equipment and direction of exhaust ports.

All motorized equipment that must operate outside the allowable working hours shall be insulated. This equipment includes, but is not limited to: generators, pumps and lighted arrow boards that will operate overnight.

3.02 Site Access

A. Haul Routes

The Contractor shall work with the appropriate government agencies in determining truck routes on this project and shall have such routes approved by same before the routes can be used. Upon approval of the truck routes, the 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 of time such routes are used by the Contractor.

Any road damaged by the Contractor's operations shall be repaired by the Contractor at no cost to the Owner. Road repairs shall be in accordance with the standards of the road agency having jurisdiction or the property owner.

B. Temporary Roads / Drives

The Contractor shall provide and maintain temporary drives, parking areas, roads, alleys and sidewalks used during construction in a satisfactory and usable condition until completion and acceptance of final restoration.

C. Emergency Vehicles, Buses and Services

The Contractor shall notify the local police and fire departments, school districts, private schools, and all public transportation agencies 72 hours prior to closing or barricading of any street. The Contractor shall erect "Road Closed to Thru Traffic" signs, and designate a suitable detour approved by the road agency having jurisdiction.

The Contractor shall maintain access for emergency vehicles throughout the site and maintain access to all public and franchise utilities for the duration of the project. The Contractor shall accommodate the continuation of regular services such as mail delivery and rubbish pick up.

D. Pedestrian and ADA Access

1. Pedestrian Access

The Contractor shall accommodate pedestrian access during performance of the Work. The Contractor shall erect signs and designate an acceptable alternate route if a pedestrian cross walk is closed or access to homes or businesses are impacted.

2. Americans with Disabilities Act (ADA) Access

The Contractor shall not impede ADA access during performance of the Work. The Contractor shall make provisions to provide ADA access, in accordance with ADAAG, PROWAG and the MMUTCD, on designated alternate routes if a pedestrian cross walk is closed or access to homes or businesses are impacted.

E. Traffic Control and Maintenance

During the progress of the Work, the Contractor shall accommodate vehicular and pedestrian traffic, except as otherwise specified herein.

All Work shall be performed 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 replaced as soon as each crossing is made.

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. Safety precautions shall be observed at all times.

The Contractor shall place and maintain traffic control devices in accordance with the Michigan Manual of Uniform Traffic Control Devices, current edition. Failure to comply with this requirement will result in the Owner shutting down the Work until the Contractor has provided the necessary protection. In addition, if required by the authority having jurisdiction, the Contractor shall provide flagmen for the directing of traffic.

The Contractor shall be responsible for all damage to the Work. The Engineer and Owner may order the damaged portion immediately removed and replaced by and at the Contractor's expense. The Contractor's responsibility for the maintenance of traffic control devices and for protecting the Work shall not cease until the Work has been accepted by the Owner.

3.03 Soil Erosion and Sedimentation Control

The intent of the Soil Erosion and Sedimentation Control Act is to minimize the transfer and deposit of sediment to drains, streams, rivers and lakes. The Contractor shall obtain a soil erosion and sedimentation control permit from the local regulatory agency and pay all fees associated with the permit. The Contractor is expected to conduct his operation in accordance with the approved plans and permit.

Prior to final site review ALL structures and sewers in the line of Work, and adjacent thereto subject to receiving any type of foreign material during construction operations, shall be inspected by the local regulatory agency and/or Owner. Structures showing evidence of foreign material shall be cleaned by the Contractor at no additional cost to the Owner. If a structure shows evidence of sufficient foreign material to suggest migration into the sewer, as determined by the local regulatory agency or Owner, the Contractor shall clean the impacted sewer at no additional cost to the Owner. A construction observer will verify the acceptance of each structure and/or sewer when cleaning is completed.

3.04 Existing Drainage and Sewage

If it is necessary in the execution of the Work to interrupt existing surface drainage, adequately sized temporary drainage facilities shall be provided until the existing drainage facilities are restored. The construction of all temporary drainage facilities shall be performed at no additional cost to the Owner.

The flow in all existing drains, storm sewers and sanitary sewers shall be maintained at full capacity, at the Contractor's expense, unless otherwise provided for in the Contract Documents.

3.05 Temporary Project Identification Signage

The Contractor is not required to provide and erect a temporary project identification sign unless otherwise specified. If the Contractor proposes to erect such a sign, a written request and shop drawings must be submitted to the Owner for approval. The use, location, size, materials, lettering and mounting of any temporary project identification signs must be approved in writing by the Owner. If approved, the Contractor shall be responsible for maintaining the sign in good condition throughout the life of the Project and for removal of the sign at completion of the Work.

3.06 Survey Staking

The Engineer will provide control points and construction staking in accordance with the provisions of this section. Any additional lines, levels or construction staking required by the Contractor to perform the Work shall be established by the Contractor at no additional cost to the Owner.

The Contractor shall carefully review the staking provided and compare the information shown on the construction survey stakes with the information shown on the drawings and provided on the cutsheets. The Contractor shall inform the Engineer of any apparent discrepancies before proceeding with the Work.

The Contractor shall utilize appropriate surveying instruments operated by qualified, competent personnel to maintain horizontal and vertical control for construction. If the method being used by the Contractor fails to give proper alignment and grade control to the Work, the Engineer will be empowered to order the Contractor to use such other method(s) as will provide adequate control.

A. Scheduling Notification

The Contractor shall notify the Engineer a minimum 48 hours prior to requiring any staking. Notification must be made by contacting the Engineer at (586) 726-1234. Communication with the crew, although recommended for mutual understanding of the requested service, is not sufficient notification.

B. Cutsheets

Cutsheets will be a copy of the survey crew's construction staking notes. Cutsheets will be available for distribution the following day from the Engineer.

C. Horizontal and Vertical Control Points (Benchmarks)

Horizontal and vertical control points will be provided for the use of survey, Contractor and construction observation personnel. The Contractor shall be responsible for preserving all control points. In the case of willful or careless disturbance, the Contractor shall be responsible for all expenses associated with reestablishing control points and shall also be responsible for delays and errors caused by their unnecessary loss or disturbance. If a control point must be disturbed in the normal course of the Work, the Contractor shall inform the Engineer a minimum 24 hours prior to disturbance.

D. Construction Staking

The Engineer will provide line and grade staking appropriate for each individual type of improvement being constructed. The Contractor shall be responsible for preserving all construction staking. In the case of willful or careless disturbance, the Contractor shall be responsible for all expenses associated with restaking and shall also be responsible for delays and errors caused by their unnecessary loss or disturbance.

It is recommended the Contractor review the following survey procedures prior to project commencement.

1. Utility Staking

Proposed public utilities, excluding franchises, will be provided with offset stakes noting station and grade at intervals not to exceed one hundred (100) feet. Centerline lath and offset stakes with station and grade will be provided for all utility structures and appurtenances. Offset stakes

with station only will be provided for limits of sand backfill areas.

Proposed public utilities, excluding franchises, will be provided with offset stakes noting station and grades at conflicts identified on the plans.

Proposed public utilities, excluding franchises, will be provided with centerline lath at all tap locations and offset stakes noting station only for tees, bends and pipe deflections.

Sanitary service leads will be staked for new sanitary sewers. Short side service leads will be staked with offset stakes noting station. The centerline of long side leads will be staked with offset stakes noting station and end of lead stakes noting invert elevation.

Open drains will be staked with station and grade along the top of bank with references to the different elevations of the drain section. Additional stakes with station and grade will be provided at all deflections in the drain.

Each end of proposed bores and tunnels will be provided with centerline lath and offset stakes noting utility pipe invert elevation (or top of pipe elevation for water mains).

2. Pavement

Pavement construction staking will only be provided along one side of the proposed pavement. Offset stakes noting station and grade will be provided as follows:

- Intervals not to exceed fifty (50) feet
- Intervals not to exceed twenty five (25) feet for curvilinear sections.
- High points, low points and grade breaks
- Points of Curvature (PC) and Points of Tangency (PT)

Radius points will be set for all curves with radius of fifty (50) feet or less. Stakes for public utility crossings will be provided after the sub-grade has been cut to grade. Super elevated and asymmetrical pavement sections will be provided with offset stakes

noting station and grade along each side of the proposed pavement.

3. Sidewalks

Sidewalks will be provided with offset stakes noting station, for alignment only, at intervals not to exceed one hundred (100) feet. Offset stakes noting grade will only be provided at locations with critical grades noted on the plans. Additional offset stakes noting station will be provided at locations with unique plan alignment.

ARTICLE 4 – UTILITY CONSTRUCTION

4.01 General

These construction requirements are intended to provide general construction guidance for elements of the Work that are not otherwise specified or referenced in the MDOT Standard Specifications. These requirements do not supersede the requirements of other agencies having jurisdiction or requirements outlined in the Contract specifications, special provisions and drawings.

4.02 Utility Conflicts

The Contractor shall verify locations and depths of all existing utilities in advance of operations and shall notify the Engineer immediately if there is less than 18" minimum vertical clearance between existing and proposed utilities.

During the construction, the Contractor shall protect and support all utilities that are encountered and use extreme caution when operating near any and all overhead and/or buried utilities.

Generally the location of proposed utilities on the plans will be followed, but in the event the Owner desires to alter the alignment to avoid unforeseen conflicts or to ease the burden of installation, the alteration shall be revised upon the direction of the Engineer. The Contractor shall not arbitrarily alter the location of proposed utilities. Owner and Engineer approval must be obtained for any location revision proposed by the Contractor. The Owner, however, reserves the exclusive right to determine the feasibility of such an alteration and to so order.

If an alteration of proposed utility location entails an increase or decrease in the cost of construction, said revised cost must be approved prior to constructing the utility. If the utility is in the public road right-of-way, the consent of the right-of-way owner must also be obtained prior to any change in location.

4.03 Excavation

Excavation shall be interpreted to mean and include the following: clearing the work site, loosening and removing all material of any characteristic which may be encountered, whether wet or dry to the depth required, and disposal of all surplus material. Excavation shall also include all collateral work necessary to complete the excavation as required, including but not limited to: sheeting, shoring, bracing, trimming, clearing, grubbing, tree removal within and adjacent to the area being excavated, supporting structures above and below ground, and removal, handling and disposal of both groundwater and surface water. **Excavations and earth moving operations shall not commence until soil erosion measures are in place according to the permit.**

All Work shall be done to line and grade as required in the Contract Documents and in accordance with grade stakes set by the Engineer. Prior to construction, the Contractor shall verify the line and grade stakes as set by the Engineer and immediately notify the Engineer of any discrepancies.

A. Site Preparation

Site preparation includes protecting and maintaining all existing features intended to remain in place, including but not limited to, conduits, wires, pipes, sewers, drains, fences, hydrants, pavements, sidewalks, trees, shrubs, landscape work, and lawns, and the removal of other items. Site preparation also includes providing and maintaining all facilities required to protect the Work, adjacent property, and the public from damage, injury, or loss.

B. Included Materials

Excavation shall include all materials encountered. Any unforeseen obstacles such as buried trees or timbers, abandoned utilities, metal objects, concrete masses, rocks, boulders, stones or any debris encountered shall be removed as work included in the construction, unless otherwise provided in the Contract Documents.

C. Pipe Clearance

Rocks, boulders, stones over two inches (2") in diameter and other buried materials shall be removed to provide a clearance of at least six inches (6") from any part of the proposed utility.

D. Utility Trench

The excavation shall be of sufficient widths and depths to provide adequate room for

construction, installation of the utility to line, grade, and dimensions called for on the plans, and to meet applicable safety regulations. In order to reduce the load on the proposed underground utilities and to avoid possible failures from excessive loads, the width of the trench shall be a minimum width to allow the backfill to be placed and compacted properly as shown in the bedding and/or trench details on the utility standard detail sheet.

1. Open Trench

The Contractor shall limit open excavation by consistently backfilling completed utility installations to grade so that not more than 100 feet of trench shall be open at one time.

2. Undercutting

Where, through the Contractor's construction procedure or because of poor existing ground conditions it is impossible to maintain alignment and/or grade properly, the Contractor shall excavate below the required grade and replace with appropriate suitable material.

Replacement material for all excess material removed shall be crushed stone or crushed concrete as approved by the Engineer. The cost of the additional excavation and placement of crushed material up to twelve inches (12") below the standard bedding depth shall be the responsibility of the Contractor and the cost shall be included in the Work. If additional excess excavation and material below twelve inches (12") is required and ordered by the Engineer, the Contractor shall be reimbursed for the additional work and the cost of said additional work shall be negotiated prior to construction unless otherwise provided for in the Contract Documents.

E. Stockpiling of Excavated Material

Excavated materials to be used for backfill shall be temporarily stored along the trench, in a manner that will not cause damage to trees, shrubs, fences, or other property, nor that will endanger the trench by imposing too great a load thereon. Distances from the edge of the trench shall be in accordance with current safety regulations.

F. Disposal of Excavation Materials

The materials excavated and not suitable or needed for backfilling shall be removed from the site and properly disposed of by the Contractor at their sole discretion, responsibility and expense.

G. Sheet piling, Bracing and Shoring

The Contractor shall furnish, place and maintain any sheet piling, bracing and shoring required by law to properly support the sides of the excavation and to prevent all movement, caving or squeezing of the soil. The Contractor shall protect pavement or utilities outside of the trench or pit. The Contractor shall assume full liability for the adequacy of all supports and site safety.

As the trench is backfilled, all sheet piling, bracing and shoring shall be removed in such a manner to prevent the caving in of the sides of the excavation or any damage to the pipe or structure unless the sheet piling, bracing and shoring is specified to be left in place. Where required to protect the Work, adjacent structures or property, sheet piling, bracing and shoring shall be left in place, but shall be cut off at a depth determined by the Engineer.

Any voids left by the removal of said materials shall be filled with compacted sand. All underground pipes, conduits and structures of every kind that may be encountered during the progress of the Work shall be shored up and fully protected from damage.

The Contractor shall receive no additional compensation for sheet piling, shoring or bracing, whether removed or left in place, unless otherwise provided for in the Contract Documents.

When a trench box is used, the bottom of the box shall ride above the top of the pipe. The Contractor shall secure the installed pipe to prevent pipe movement when the box is moved.

H. Dewatering

The Contractor shall provide and maintain adequate pumping and drainage facilities for the prompt removal and disposal of water from trenches or other excavations at all times during the construction of the Work. The Contractor shall submit a dewatering plan to the Engineer for review of well placement and discharge.

The excavation shall be kept dry until the backfilling and required testing has been completed. The Contractor shall receive no additional compensation for providing, maintaining, or operating any dewatering or drainage facilities unless otherwise provided for in the Contract Documents.

During construction, no trench water shall be allowed to enter the pipe either during construction or when work is not in progress. To prevent trench water and soils from entering the pipe when work is not in progress, all open ends of pipe or fittings shall be covered. No pipe shall be laid in water unless specifically permitted by the Engineer.

1. Excessive Water

In water-bearing sand, quicksand or ground containing an excessive amount of water, the Contractor shall provide, install, maintain, and operate suitable deep wells, well points, tight sheeting, connecting manifolds, and reliable pumping equipment to operate same to insure proper construction of the Work. The Contractor shall fill all well holes with Bentonite upon the completion of dewatering operations.

2. Discharge

Contractor shall comply with the sedimentation control requirements of the local agency having jurisdiction and obtain all required permits. Contractor shall utilize measures to prevent the discharge of sediments, including but not limited to, discharge through a filter bag.

Drainage or discharge lines shall be connected to adjacent storm water drains or extended to nearby water courses wherever possible. In any event, all pumping and drainage shall be done without damage to any paved surface or other property, public or private, and without interference with the rights of the public or private property owners. No ground water, storm water, construction water, downspout drainage or weep tile drainage shall be allowed to enter any sanitary sewer installation.

3. Access

The Contractor shall be responsible for ensuring site access requirements during dewatering operations.

4. Existing Wells

The Contractor shall be responsible for providing potable water to all residents whose drinking water well is inoperable due to dewatering, unless otherwise provided for in the Contract Documents.

4.04 Jacked in Place Steel Pipe

When jacked in place steel pipe is specified on the plans or directed by the Engineer, it is intended to be accomplished with the use of a conventional boring pit operation. This includes a horizontal boring machine, auger and steel casing.

Bore items will only be paid if the work item is actually performed. If the Contractor proposes an alternate method of protecting trees or utility poles, or if it is determined the affected trees or utility poles can be removed, a price for the alternate will be negotiated prior to the start of the work. A Contract Modification will be issued to pay for the alternate method and to reduce the quantity for the associated bid items. Sheeting, shoring, bracing, and dewatering of the entry and receiving pit shall be included in the Jacked in Place Steel Pipe bid item.

A. General

During pipe jacking operations, the augers shall not extend beyond the end of the casing and the casing shall not be pushed unless the auger is turning. The auger head shall be four inches (4") behind the end of the casing.

B. Casing Material

Steel pipe casings shall meet the requirements of ASTM A-139, Grade B material. The casing shall be new pipe prepared for field welding of circumferential joints. The outside diameter and wall thickness of the casing pipe shall meet the minimum requirements set forth in Section 909 of the MDOT Standard Specifications for Construction.

The inside diameter of all other casing pipes shall be at least six inches (6") larger than the largest outside diameter of the carrier pipe. The casing diameter and wall thickness shown on the detailed plans shall govern in case of a conflict with these specifications.

C. Skids and Bracing

Skids, position braces and blocking braces shall be strapped to the carrier pipe prior to installing inside of a casing. All skids and braces shall be

wolmanized timber and notched to accommodate the steel strapping bands. Alternate skid and bracing materials may be used with Engineer approval or if specified by the government agency having jurisdiction.

D. Casing Fill and Sealing

Both ends of the casing pipe shall be sealed by bulkhead, with brick and mortar, after installation of the underground utility within the casing. The space between the carrier and casing pipe shall be filled with lean grout or flowable fill.

The lean grout or flowable fill shall be supplied in conformance with the "Guide Specification for Controlled Low Strength Materials (CLSM)" published by the National Ready Mixed Concrete Association and the referenced standards therein. It shall have an unconfined compressive strength of greater than thirty pounds per square inch (>30 psi) and less than one hundred fifty pounds per square inch (< 150 psi). The material must allow for excavation with non-mechanical equipment.

Alternate methods of filling and sealing the casing pipe may be used with Engineer approval.

The bore pits shall be filled to the spring line of the carrier pipe with suitable bedding material to adequately support the carrier pipe and prevent shearing at the ends of the casing pipe.

4.05 Backfill

Backfill materials, methods, and requirements shall meet the MDOT Standard Plans R-83 series, and the MDOT Standard Specifications, unless otherwise noted herein, shown on the drawings or as required by other agencies.

A. Unsuitable Material

All backfill material shall be free from cinders, ashes, refuse, vegetable or organic matter, boulders, rocks or stones, or other materials which, in the opinion of the Engineer are unsuitable. Frozen material shall not be used as backfill.

B. Bedding and Initial Backfill

Unless otherwise directed, all utility excavation shall be backfilled at least to a point one foot

(1') above the underground utility pipe immediately after installation.

Bedding and initial backfill material, from a minimum four inches (4") below the underground utility pipe to a point one foot (1') above the top of the pipe, shall be in accordance with the Standard Bedding Detail on the applicable utility Standard Detail Sheet. This backfill shall be placed in six inch (6") layers and compacted to ninety-five percent (95%) of the maximum unit weight.

C. Trench Backfill

Trench backfill in areas within the influence of sidewalks or vehicular traffic shall be placed in layers not to exceed twelve inches (12") in thickness and thoroughly compacted to ninety-five percent (95%) of the maximum density as determined by the Modified Proctor Method.

Trench backfill under areas not subject to vehicular or pedestrian traffic shall be any natural or otherwise approved material that can be compacted to the required density and contains no organic material. Backfill shall be placed in layers not to exceed twelve inches (12") in thickness and thoroughly compacted to ninety percent (90%) of the maximum density as determined by the Modified Proctor Method.

D. Temporary Surfacing

For paved streets or other paved areas, unless the Contractor restores the permanent pavement immediately following the completion of backfilling as the construction proceeds, the Contractor shall construct and maintain a temporary surface suitable for traffic. Unless otherwise specified or required by another agency such as the County Road Commission or MDOT, temporary surfacing shall consist of nine inches (9") of compacted MDOT 22A or 21AA and three inches (3") of cold patch asphalt surfacing which shall be rolled to correspond with the adjacent pavement. Said temporary surfacing shall be maintained in acceptable condition until the pavement is replaced.

4.06 Construction in Fill Sections and Embankments

All sites shall be completely land balanced to rough grade prior to utility installation. Backfill shall be placed in layers not to exceed twelve inches (12") in thickness and thoroughly compacted to not less than

ninety-five percent (95%) of maximum density as determined by the Modified Proctor Method.

ARTICLE 5 – RESTORATION

5.01 Green Belt

A. Landscaping

All trees, hedges, lights, and any other landscaping not specified for removal shall be protected during construction. If removal is required to construct any portion of the Project, the item removed shall be carefully removed and replaced prior to the completion of the Project. Trees, hedges and other living plants shall be kept alive after removal and replanted. The Contractor shall be responsible to reestablish the plant and shall be responsible for construction related damage or death of the tree or plant for the life of the maintenance bond.

The restoration for the entire project includes all labor, equipment and materials to completely restore anything affected by construction to a condition equal to or better than existing prior to construction. This includes, but is not limited to mailboxes, field tiles, ditching, lawns, shrubs, trees, plantings, sprinkler systems, landscaping, fences, yard decorations, brick pavers and existing utilities.

The Contractor shall carefully determine all restoration items in the construction area and make allowance for their cost in their bid.

B. Turf Restoration

Turf restoration consists of preparing all areas disturbed by the Work, and applying topsoil, fertilizer, sod and/or seed and mulch to those areas. All work shall be performed in accordance with Section 816 of the current MDOT Standard Specifications for Construction, except as modified herein.

All materials used for Turf Restoration shall meet the requirements of Section 917 of the current MDOT Standard Specifications for Construction.

Materials included in sodding are:

- Topsoil Surface, Furn, 3 inch
- Fertilizer, Chemical Nutrient, Cl A
- Sodding
- Water, Sodding/Seeding

Materials included in seeding are:

- Topsoil Surface, Furn, 3 inch
- Fertilizer, Chemical Nutrient, Cl A
- Seeding, Mixture THM (Turf Loamy to Heavy)
- Mulch and Mulch Anchoring
- Water, Sodding/Seeding

The Contractor shall perform Turf Restoration for all areas disturbed by the Work. All Turf Restoration shall be sodding, unless seeding is authorized by the Engineer.

Areas to be sodded/seeded shall be shaped and compacted per Section 816 of the current MDOT Standard Specifications for Construction. Place topsoil to the minimum depth indicated above to meet finish grade. If the area being restored requires more than the minimum depth indicated above to meet the finish grade, this additional depth must be filled using topsoil.

All areas disturbed by the Contractor and/or Subcontractor beyond the normal construction limits of the Work shall be sodded or seeded in accordance with this requirement at the direction of the Engineer.

Watering of new sod and seed shall be in accordance with the current MDOT Standard Specifications for Construction.

Water for this use may be obtained from the local water supply only with written permission from the local water system authority.

C. Irrigation System

The Contractor shall be responsible for verifying the location of, and protecting or removing and salvaging, portions of any existing privately owned and maintained irrigation systems which are located within the construction area. In addition, the Contractor shall be responsible for the re-installation of sprinkler lines and spray-heads after the Work has been completed, prior to performing final restoration work.

Once the irrigation lines and spray heads have been located, the Contractor shall carefully cut and remove the existing lines at a point just outside the limits of earth excavation. Temporary plugs shall be inserted into all open ends of pipe, which shall be capable of withstanding any line pressure from the

remaining portion of the irrigation system which is left undisturbed.

All existing spray heads and irrigation piping may be salvaged for later use in replacing the irrigation system. The work shall be performed by Contractors familiar with all aspects of irrigation system installation with a minimum of three (3) years' experience in such line of work.

5.02 Aggregate Surfaces

Construction of aggregate surfaces shall include all labor, equipment and material required to furnish, place and compact an MDOT certified aggregate surface course of the thickness and gradation specified by the local road authority having jurisdiction.

All materials shall meet the requirements of Section 902 of the current MDOT Standard Specifications for Construction. All material shall meet the gradation requirements for 23A dense graded aggregates as specified in Table 902-1 or as required by the local road authority having jurisdiction.

The work shall be performed in accordance with the requirements for Aggregate Surface Course and/or Class II Shoulder and Approaches – 23A as outlined in Sections 306 and 307 of the current MDOT Standard Specifications.

Place and compact the material in a manner that does not damage adjacent paved surfaces, if present. Maintain aggregate material in a smooth, stable condition and provide dust control. Scarify the existing surface full-width to a minimum depth of two inches (2") when adding aggregate material. Maintain compacted aggregate flush with each course of Hot Mix Asphalt (HMA) placed, if applicable. Grade aggregate material to provide positive drainage at all times. Aggregate material shall be compacted to 95 percent of the maximum unit weight at moisture content not greater than optimum.

5.03 Paved Surfaces

A. Concrete Pavement Repair

1. General

All work shall be done in accordance with the current Standard Specifications for Construction of the Michigan Department of Transportation (MDOT) except as otherwise modified herein.

2. Sawcutting

Where pavement is to be removed the concrete shall be saw cut full depth prior to removal. If the pavement is found to have not been saw cut full depth, the Contractor shall saw cut full depth a new joint beyond the limits of the previous saw cut joint and remove and replace the additional concrete at the Contractor's expense.

3. Removal

Concrete to be removed may vary in thickness and may include HMA overlay of various thicknesses and adjacent curbs. Pavement removal shall include all labor and equipment required for sawcutting, breaking, removing and disposing the existing pavement. The Contractor shall be responsible for protecting the pavement abutting the repair area.

4. Preparation of Base for Concrete Pavement Repair

Excavation shall be made to the required depth and width that will permit forming including a 4" minimum aggregate base, unless otherwise specified by the local road authority having jurisdiction. All base material shall be crushed limestone meeting the gradation requirements for 21AA dense graded aggregates as specified in MDOT Table 902-1. The material shall be shaped and compacted to the required density

5. Subgrade Undercutting

Where directed by the Engineer, the Contractor shall perform subgrade undercutting to remove unsuitable subgrade material. This work shall conform to the specifications set forth in the current MDOT Standard Specifications or as directed by the Engineer.

6. Portland Cement Concrete Mixture

All concrete furnished for the Work shall be a Portland cement concrete mixture that is resistant to excessive expansion caused by alkali-silica reactivity (ASR). Concrete shall generally meet the requirements of Grade P1, 5.6 sack concrete, modified as follows. The Contractor shall provide a concrete as modified by the Special Provisions.

All concrete mix designs shall be presented to the Engineer at the preconstruction

meeting along with which of the two options the Contractor will use to prevent ASR.

7. Concrete Sidewalk & Drive Approaches

Construction of concrete sidewalk and/or drive approaches shall include all labor, material and equipment required to compact the grade, form, and install non-reinforced concrete. Sidewalk forms shall provide for a transverse slope of 1/4 inch per foot towards the roadway unless otherwise specified. Standard concrete walks shall be 4" thick and concrete walk/drive approaches shall be 6" thick.

8. Concrete Sidewalk Ramp

Sidewalk ramps at all public and private road crossings shall be constructed barrier free with a "Detectable Warning Surface". The work shall be in accordance with current MDOT Standard plans.

The work shall also include all necessary excavation, forming, and additional non-reinforced concrete required to make the first five (5) feet of the ramp, adjacent to any pavement, 8" thick. A 1" thick expansion joint shall be placed in the concrete surface where the thickness transitions down to 4" thick.

The Contractor shall provide detectable warning surfaces as specified by the local agency having jurisdiction and shall comply with all requirements of the ADAAG, the PROWAG and the MMUTCD.

9. Concrete Pavement

Concrete pavement repair shall include all labor, material and equipment required to compact the grade, form, and replace the concrete pavement and/or integral curb. Pavement thickness and reinforcing shall be as specified by the local road authority having jurisdiction.

10. Concrete Curb and Gutter

Concrete curb and gutter shall include all labor, material and equipment required to compact the grade, form and replace the concrete curb and gutter. The curb shall be formed to match the existing curb shape.

11. Forms

Forms shall be of wood or metal, straight and free from warp, and of sufficient strength to resist springing during the process of depositing concrete against them. The forms shall be the full depth of the concrete. Gaps between forms, overlapping forms, or forms not providing a straight edge will not be accepted. Forms shall be firmly staked to the required line and grade.

12. Curing

Application of curing compound shall be required in accordance with the current MDOT Standard Specifications on all concrete pavement.

13. Concrete Protection

It is the responsibility of the Contractor to protect the placed concrete from vandalism, traffic, rain, cold weather, markings or other such damage.

Contractor shall take such precautions as are necessary to protect the concrete from damage caused by rain. If concrete is being poured when rain commences, the Contractor shall stop pouring immediately and cover all concrete that may be subject to damage.

Damaged concrete will be removed and replaced at no cost to the Owner.

14. Grouting

All honeycombed areas shall be grouted as directed by the Engineer prior to backfilling.

15. Joints

The Contractor shall provide all labor, equipment and materials required to construct concrete pavement joints as specified by the local road authority having jurisdiction, or in accordance with Section 603 and Section 914 of the current MDOT Standard Specifications, except as modified herein.

Hook bolt sizing and spacing shall be in accordance with MDOT Standard Plans, R-44 series.

B. Hot Mix Asphalt (HMA) Repair

1. General

HMA paving materials shall be furnished and placed on a prepared base to match existing lines and grades unless otherwise shown in the Contract Documents.

2. Sawcutting

Where HMA is to be removed the pavement shall be saw cut full depth prior to removal. If the pavement is found to have not been saw cut full depth, the Contractor shall saw cut full depth a new joint beyond the limits of the previous saw cut joint and remove and replace the additional HMA at the Contractor's expense.

3. Removal

HMA to be removed may vary in thickness and may include underlying concrete pavement of various thicknesses and adjacent curbs. Pavement removal shall include all labor and equipment required for sawcutting, breaking, removing and disposing the existing pavement. The Contractor shall be responsible for protecting the pavement abutting the repair area.

4. Preparation of Base for HMA Pavement Repair

Excavation shall be made to the required depth and width that will accommodate the aggregate base and pavement thickness required by the local road authority having jurisdiction. All base material shall be crushed limestone meeting the gradation requirements for 21AA dense graded aggregates as specified in MDOT Table 902-1. The material shall be shaped and compacted to the required density.

5. Subgrade Undercutting

Where directed by the Engineer, the Contractor shall perform subgrade undercutting to remove unsuitable subgrade material. This work shall conform to the specifications set forth in the current MDOT Standard Specifications or as directed by the Engineer.

6. Materials

All HMA Mixtures shall be in accordance with the MDOT Standard Specifications for Construction. Reclaimed asphalt will be

allowed in any of the mixes. Unless otherwise specified in the Contract Documents or by the local road authority having jurisdiction, HMA materials shall have the following minimum application rates or a total thickness equal to the existing pavement, whichever is greater:

a.) Roadways (8" minimum thickness).

Base Course material shall be HMA, 2C applied at a rate of 440 lbs/syd.

Leveling Course material shall be HMA, 3C applied at a rate of 220 lbs/syd.

Top Course material shall be HMA, 4C applied at a rate of 220 lbs/syd.

b.) Residential driveway approaches (3" minimum thickness).

Leveling Course and Top Course material shall be HMA, 36A applied in two (2) lifts consisting of a leveling course applied at a rate of 165 lbs/syd. and a top course applied at a rate of 165 lbs/syd.

c.) Commercial driveway approaches (6" minimum thickness).

Base and leveling course material shall be HMA, 3C, applied in two (2) lifts at a rate of 220 lbs/syd., per each lift.

Top course shall be HMA 13A applied at a rate of 220 lbs /syd.

d.) Parking lots (4" minimum thickness).

Leveling Course material shall be HMA, 3C applied at a rate of 275 lbs/syd.

Top Course material shall be HMA, 36A applied at a rate of 165 lbs/syd.

e.) Performance Grade Binder

The Performance Grade Binder for all mixtures shall be: 64-22.

f.) Aggregate Wear Index

The required Aggregate Wear Index (AWI) number shall be 220, minimum.

g.) Bond Coats

Bond Coats shall be applied in accordance with the current MDOT Standard Specifications for Construction. Bond Coats shall be SS-1h applied at a rate of 0.05 to 0.10 gal/square yard.

7. Construction

Do not place HMA or apply bond coat when moisture on the existing surface will prevent satisfactory curing.

8. HMA Protection

It is the responsibility of the Contractor to protect the placed HMA from vandalism, traffic, or other markings or damage.

Damaged HMA will be removed and replaced at no cost to the Owner.

The provisions of this section are intended to supplement or take precedence over the General Conditions, Supplementary Conditions, and Specifications of the Contract Documents.

GENERAL

The project location is identified on the plans contained in these specifications. All work in the sewer shall be performed in dry weather to avoid the higher flows that occur due to precipitation or the spring thaw.

All work shall be done in accordance with the current Michigan Department of Transportation Standard Specifications and the current Edition for Wastewater Collection Systems, Maintenance and Rehabilitation of the NASSCO Specification Guidelines.

SCOPE OF THE PROJECT

The work under this Contract includes all the work required to reconstruct the existing sanitary sewers indicated on the plan by the installation of Full Length cured-in-place pipe (CIPP) and to prepare a report of all pertinent information to be submitted to the Owner before final acceptance.

A CIPP pipe is formed by the insertion of a resin-impregnated flexible felt tube into the existing pipe. The tube is then expanded with water to fit against the original conduit and then heated to cure the resin. When cured, the finished sewer lining shall be a tight fitting, jointless, structural pipe that is continuous from end to end and formed against the existing pipe.

This project (as identified by the plan) involves the CIPP rehabilitation and C.C.T.V. investigation of sewers in continual use. It shall be the responsibility of the Contractor to insure that the cleaning operations do not interfere with the functioning of the sewer. In the event that work is suspended due to a rainfall event, no payment will be made in addition to the normal unit prices.

Quantities may increase or decrease, additional work may be added or work deleted as conditions require with the Engineer's approval.

INCLUDED WORK

All items of work noted on the Plans or in the Specifications that are not specifically noted in the proposal, but which are normally required for this type of work, shall be considered as included in the construction and shall be constructed at no extra cost to the Owner. All surface restoration work shall be included in the Contract Unit Prices.

SAFETY

The Contractor shall conform to all work safety requirements of pertinent regulatory agencies, and shall secure the site for working conditions in compliance with the same. The Contractor shall erect such signs and other devices as are necessary for the safety of the work site.

The Contractor shall perform all of the Work in accordance with applicable OSHA standards. Emphasis shall be placed upon the requirements for entering confined spaces and with the equipment being utilized for manhole renewal components. Confined space, defined as any space having one or more of the following characteristics:

1. Limited opening for entry and exit.
2. Unfavorable natural ventilation.
3. Not designed for continuous worker occupancy.

The Contractor shall have, on the job site at all times and at a minimum, the following safety equipment:

1. Gas monitor capable of testing and detecting for combustible gas, oxygen deficiency, and H₂S
2. Confined space access and retrieval winch system.
3. Ventilating fans with large diameter ventilating hose.
4. Supplied air respirator, MSHA/NIOSH approved type.
5. Safety harness and life lines.
6. Other equipment as may be required.
7. This equipment to be available for use, in sufficient quantity, by the Contractor, Engineer and Owner for the duration of the project.

All entries into or work within confined spaces shall be conducted in accordance with the U.S. Department of Health and Human Services/National Institute for Occupational Safety and Health [DHHS (NIOSH)] Publication No. 87-113, A Guide to Safety in Confined Spaces.

The Contractor shall submit a proposed Safety Plan to the Engineer, prior to beginning any work, identifying all competent persons, equipment and operating procedures. The plan shall include a description of a daily safety program for the job site and all emergency procedures to be implemented in the event of a safety incident. All work shall be conducted in accordance with the Contractor's submitted Safety Plan.

Payment for all work required for the submittal of the Safety Plan shall be considered included in the project.

UTILITY PROTECTION

Determining the existence and the locations of underground and overhead lines and their protection shall be the responsibility of the Contractor. Utility work referring to the removal, relocation and/or replacement of gas, telephone, and electric power lines, pipes, poles and appurtenances as required, will be done by the forces of the utility company involved. Allowances in the bid for related costs of that work shall be made by the Contractor. CALL MISS DIG. Special consideration shall be given to locating, by hand digging, the gas main and gas services.

Before starting construction, the Contractor shall check with the Utility Companies to ascertain for himself the location of all utilities which might interfere with the work and shall give due notice to all organizations whose utilities will be affected by his operations.

It shall be the Contractor's responsibility to locate all existing gas service shut-offs and adjust as necessary to meet the new construction. The City water department will assist the Contractor in locating water shut-offs. If existing water service shut-off boxes need to be replaced, the work will be done by the City water department.

UTILITY COORDINATION

The Contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in Section 104.08 of the current MDOT Standard Specifications for Construction. In addition, for the protection of underground utilities, the Contractor shall follow the requirements in Section 107.12 of the current MDOT Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon Section 109.05.E of the current MDOT Standard Specifications for Construction. The following utilities have facilities located within the Right-of-Way:

Electric	Detroit Edison		(586) 412-4738
Telephone	AT&T		(586) 466-1056
Cable	Comcast Cable		(586) 978-3544
	Wide Open West		(248) 677-9008
Gas	Consumers Energy	Emergency	(800) 477-5050
		Damage Prevention	(586) 307-3223
		Engineering	(586) 307-3212
Trash	GFL		(844) 464-3587

For protection of underground utilities and in conformance with Public Act 53, the Contractor shall dial 1-800-482-7171 or 811 a minimum of three full working days, excluding Saturdays, Sundays, and holidays prior to beginning each excavation in areas where public utilities have not been previously located. Members will thus be routinely notified. This does not relieve the Contractor of the responsibility of notifying utility Owners who may not be a part of the "Miss Dig" alert system.

The Owners of existing service facilities that are within grading or structure limits and/or in conflict with the proposed improvements will move them to locations designated by the Engineer or will remove them entirely from the road Right-of-Way. Owners of Public Utilities will not be required by the City to move additional poles or structures in order to facilitate the operation of construction equipment unless it is determined by the Engineer that such poles or structures constitute a hazard to the public or are extraordinarily dangerous to the Contractor's operation. The structure and utility information shown on the plans indicates approximate locations and type of facilities as disclosed by the various utility company records. No guarantee is given or implied to the completeness or accuracy thereof.

It shall be the Contractor's responsibility to locate and determine the exact depth of existing utilities and building services prior to construction. Said utility information shall be supplied to the Owner, Engineer, and/or utility companies involved.

There will be no compensation for delays in construction due to the failure of the Contractor to properly coordinate conflicts with utility companies.

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. No guarantee is made by the Owner or Engineer as to the completeness and/or accuracy of utility information shown on the plans. Information is from available records and is approximate only.

WORKING SPACE

In his operations, the Contractor shall interfere as little as possible with traffic and in all cases shall confine his operations within the Right-Of-Way lines and project limits.

Stockpiling of construction material and equipment will be permitted as necessary, but in no case shall traveled ways, driveways, or entrances be unduly obstructed.

Should the Contractor desire additional space on private property, he may obtain such space on privately owned property at his own expense, by agreement with the Owner thereof, and shall pay for all restoration costs.

WATER USAGE

All water used in connection with the work shall be from the local water department. If required by the Owner, the Contractor shall secure the required permit from the local Department of Water Supply for water used and shall bear all expenses of such permit and for the water used. Where connections are made to fire hydrants designated by the City, the Contractor shall also obtain permission for such connections from the local Fire Department. Fire Department standard hydrant wrench shall be used for opening and closing the hydrant. Pipe wrenches shall not be used to open or close hydrants. Use of any fire hydrant shall include the requirement that each hydrant so used be completely drained (pumped dry) after each use.

Where water is not available from the local water department the contractor shall obtain his own source of supply, the quality of which shall be subject to the approval of the Engineer.

TRUCK ROUTES

All construction traffic shall comply with existing traffic patterns and regulations. All trucks shall have strobe and/or warning lights in working condition for continuous use for all work. Approval of truck routes will be determined at the pre-construction meeting. The Contractor shall be responsible for the repair or replacement of any property which is damaged due to truck and equipment traffic. Construction traffic should utilize major roads at all times.

STREET CLEANLINESS

The Contractor shall clean and keep clean the street, the work area and public or private property occupied by him, from waste materials, refuse, mud, etc., resulting from his operations. Trucks hauling excavated materials, cement, sand, stone or other loose materials from or to the site shall be tight so that no spillage will occur on adjacent streets. Before trucks start away from the site, their loads shall be trimmed. Should the Contractor be negligent of his duties in maintaining the proper street cleanliness, the Owner will take necessary steps to perform such cleaning and shall charge the Contractor for all the costs.

WORK COMPLETED WITHIN REAR YARD EASEMENTS

The Contractor shall obtain written permission to enter on to any private property affected by the cleaning operations.

The Contractor shall be responsible for notifying any residents as to the work which is contemplated and obtaining permission for any work which may be done on private property.

Several manholes are located in areas which may prevent free and easy access (i.e. - under fences, buried, etc.). Each structure should be evaluated with respect to the proposed cleaning operations and considered in the bid. All work required to access manholes shall be considered included in the project. All disturbed areas shall be restored to a condition equal to or better than exists and shall also be included in the project.

SEWER DISCHARGE

There shall be no discharge of storm/sanitary or combined sewage to land, surface waters, or ground waters of the State due to work from this project. Tributary sewer service shall be maintained at all times during work (i.e. properly designed bypass pumping is required and is necessary). A designated sanitary manhole located near the DPW will be available for decanting any liquids from the pre or post CCTV sewer operations. Under no circumstances will the discharge of any kind be allowed back into the sanitary system.

DEWATERING SANITARY SEWERS

It may be necessary to plug existing sanitary and combined sewers to complete certain items of work under the Contract. In order to dewater sewers, the Contractor must receive approval from the Engineer for the use of any temporary plugs. If dewatering is deemed necessary, the Contractor shall furnish and install temporary plugs and dewater the sewer to complete the work which required the sewer to be dewatered. The cost involved for installing plugs coordinating any assistance from the DPW on pump station operation and dewatering shall be included in the cost of contract unit prices for the lining of the sewers.

BYPASS PUMPING

If bypass pumping is deemed necessary, the Contractor must receive approval from the Engineer for any bypass pumping operations. Should bypass pumping be deemed necessary, The Contractor shall furnish and install temporary plugs around the sections of pipe or existing sanitary sewer pump stations, where the nature of the work involved would dictate, then the bypass shall be made by plugging the line at a point upstream of the sewer being bypassed and pumping the flow to a point downstream. The pumps and bypass lines shall be of adequate capacity and size to handle the flow. Public advisory notices will be required to notify all parties who may have laterals from sump leads or service leads to the mainline sewer that the lead will be out of commission and to advise against usage until the mainline is back in service.

Payment for this item shall be included in the contract unit prices for the lining of the sewers.

PUBLIC NOTIFICATION

The contractor shall make every effort to maintain service usage throughout the duration of the project. In the event that a service becomes out of commission, it shall be the Contractor's responsibility to notify every resident or business owner affected and to inform the approximate time the sewer will be out of commission. The maximum amount of time of no service shall be 12 hours for any property served by the sewer. A public notification program shall be implemented, and shall as a minimum, require the contractor to be responsible for contacting each home or business connected to the sewer and informing them of the work to be conducted, and when the sewer will be off-line. The contractor shall provide the following:

- a. Written notice to be delivered to each home or business describing the work, schedule, how it affects them, and a local telephone number of the contractor they can call to discuss the project or any problems which could arise.
- b. Personal contact and attempted written notice the day prior to the beginning of work being conducted on the section relative to the residents affected.
- c. Personal contact with any home or business which cannot be reconnected within the time stated in the written notice.

Payment for this item shall be included in the contract unit prices for the lining of the sewers.

STRUCTURE CLEANING

Prior to final site review ALL structures in the line of work, and adjacent thereto, subject to receiving any type of foreign material during construction operations shall be cleaned with power vacuum equipment. A construction observer shall verify the acceptance of each structure when vacuuming is completed. This work shall be included in the contract unit prices for the lining of the sewers

UNINTERRUPTIBLE SANITARY SERVICE

UNINTERRUPTIBLE mainline sanitary sewerage service shall be maintained at all times during this project.

CONSTRUCTION DEBRIS

The Contractor shall make all necessary provisions to prevent foreign materials from entering the sewer system.

- A. Prior to pre and post CCTV operations, a wire mesh with maximum spacing of ½ inch shall be placed over the downstream outlet pipe. The wire mesh shall be secured to the pipe or wall to prevent dislodging.
- B. Other means to prevent debris from entering the sewer system shall be approved by the Engineer.
- C. All debris shall be removed from the manhole immediately following pre and post CCTV operations by the use of a vactor truck or appropriate methods.
- D. If it is determined that debris has entered the sewer system, the Contractor will be required to clean the sewer segment at no additional cost to the Owner.

SEWER, PRE-CONSTRUCTION, CLEAN AND CCTV, DIAMETER SPECIFIED

Cleaning of sewers for pre-lining operations, from manhole to manhole of the diameter specified, shall be performed in accordance with the CLEANING AND TELEVISION SPECIFICATIONS and with the FULL LENGTH CIPP SPECIFICATIONS at locations listed in the work schedule. Payment shall be at the contract unit price per linear foot.

SEWER, POST-CONSTRUCTION, CLEAN AND CCTV, DIAMETER SPECIFIED

Cleaning of sewers for POST-lining operations, from manhole to manhole of the diameter specified, shall be performed in accordance with the CLEANING AND TELEVISION SPECIFICATIONS and with the FULL LENGTH CIPP SPECIFICATIONS at locations listed in the work schedule. Payment shall be at the contract unit price per linear foot.

SEWER, CIPP, __ INCH, FULL LENGTH

CIPP Lining, from manhole to manhole of the diameter specified, shall be performed in accordance with the CIPP SPECIFICATIONS at locations listed in the work schedule. Payment shall be at the contract unit price per linear foot.

LATERAL, REINSTATE

Lateral reinstatements shall be performed in accordance with the CIPP SPECIFICATIONS. Payment shall be at the contract unit price per each active sanitary service connection reinstated.

LATERAL, PREPARATION

Clearing obstructions (roots/mineral deposits) inside service laterals shall be performed in accordance with "Lateral, Preparation" of the CIPP SPECIFICATIONS. Payment shall be at the contract unit price per each lateral cleared of obstructions

CUTTING SERVICE LEAD PROTRUSIONS

Cutting service lead protrusions removal shall be performed in accordance with "Cutting Service Lead Protrusions" of the CLEANING AND TELEVISION SPECIFICATIONS. Payment shall be at the contract unit price per each joint or crack location.

MINERAL DEPOSIT, REM

Mineral deposit removal shall be performed in accordance with "Mineral Deposit, Rem" of the CLEANING AND TELEVISION SPECIFICATIONS. Payment shall be at the contract unit price per each joint or crack location.

**TRAFFIC CONTROL, MAJOR STREET
TRAFFIC CONTROL, MINOR STREET**

This work shall consist of all labor, materials and equipment required to maintain traffic in accordance with the SPECIAL PROVISION FOR MAINTAINING TRAFFIC for sewer cleaning work on various roads and streets in the city of Eastpointe.

Traffic maintenance and control within the MDOT right-of-ways shall conform to all requirements of the Michigan Department of Transportation (MDOT) Right-of-Way Permit. Contractor is responsible for all fees associated with securing an MDOT ROW permit.

Traffic maintenance and control within the MCDR right-of-ways shall conform to all requirements of the Macomb County Department of Roads (MCDR) Right-of-Way Permit. Contractor is responsible for all fees associated with securing an MCDR ROW permit.

Payment for Traffic Control, Major Street and Traffic Control, Minor Street shall be paid on a lump sum basis.

DELIVERABLES

The two (2) digital copies of all inspection reports and videos shall be submitted. Also, two (2) hard copies of the tv reports shall be prepared and submitted in accordance with CLEANING AND TELEVISION SPECIFICATIONS and payment for this item of work shall be paid as a lump sum upon complete delivery, review and approval by the Engineer of the digital copy of the investigation results within 30 (thirty) days from completion of the Project.

FINAL CLEAN-UP AND RESTORATION

All trees, hedges, lights, and any other landscaping shall be protected during construction. If removal is required to construct any portion of this Project, the item removed shall be carefully removed and replaced prior to the completion of this Project. Trees, hedges and other living plants shall be kept alive after removal and replanted. The Contractor shall be responsible to reestablish the plant and shall be responsible for construction related damage or death of the tree or plant.

Payment for Final Clean-Up and Restoration shall be included in the contract unit price for sewer lining. This item shall include final grading, restoration, topsoil and sod, removal and replacement of landscaping and trees and any related work to return the site to a condition equal to or better than that existing prior to construction.

Restoration

The restoration for all of the project includes all labor, equipment and materials to completely restore anything affected by the construction to a condition equal to or better than existed prior to construction. This includes, but is not limited to mailboxes, field tiles, ditching, lawns, shrubs, trees, sprinkler systems, landscaping and existing utilities.

The Contractor shall carefully determine in the field all restoration items in the construction area and make allowance for their cost in the Proposal.

PUBLIC RELATIONS

Every effort shall be made by the Contractor to minimize inconvenience to the residents and businesses and to provide for vehicular access to all areas. On-street parking is allowed on these streets, which will require that the Contractor notify residents to remove vehicles when work is to start on a particular street.

In an effort to provide good public relations, the Contractor shall provide for the delivery of an informational flyer to each residence affected by the project prior to start of work on the street. The flyer will be prepared and furnished to the Contractor by the City. The Contractor shall make the delivery.

The Contractor shall ensure that all workmen are courteous to the public, and shall refrain from using any resident's private property or water for any reason without the homeowner's written permission.

GENERAL

These Specifications form a part of the Contract herewith attached and are intended to technically describe the nature of the materials, equipment and workmanship required to complete in a workmanlike manner, the closed circuit television (C.C.T.V.) and service cleaning of combined sewers shown on the accompanying plans.

Methods of construction will generally be left to the discretion of the Contractor as long as satisfactory progress is maintained

All work in this Contract shall conform to the current National Association of Sewer Service Companies (NASSCO) Specification Guidelines for Construction, except as modified in these Specifications.

The provisions of this section are intended to supplement or take precedence over the General Conditions of the Contract documents.

1. SEWER LINE CLEANING**A. Intent**

The intent of sewer line cleaning is to remove foreign materials from the lines in order to effectively view, record and restore the sewer to a minimum of 95% of the original carrying capacity. Since the success of the future phases of work depends on the cleanliness of the lines, the importance of this phase of the operation is emphasized. It is recognized that there are some conditions such as broken pipe, possible gas services and major blockages that prevent cleaning from being accomplished or where additional damage would result if cleaning were attempted or continued. Should such conditions be encountered, the Contractor will not be required to clean those specific sections. If in the course of normal cleaning operations, damage does result from preexisting and unforeseen conditions such as broken pipe, the Contractor will not be held responsible. Before any heavy cleaning and/or root cutting is approved, the contractor shall verify the gas main and services have been staked with elevations confirmed by the gas company. In the event that a gas service is discovered, the contractor shall immediately supply a CCTV report and photo to the Engineer. The CCTV report and photo will then be passed on to the gas company for repair.

B. Cleaning Equipment

- 1) Hydraulically Propelled Equipment: The equipment used shall be of a moveable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to ensure removal of grease. If sewer cleaning balls or other equipment, which cannot be collapsed is used, special precautions to prevent flooding of the sewers and public or private property shall be taken.

- 2) High-Velocity Jet (Hydrocleaning) Equipment: All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines designated to be cleaned. Equipment shall also include a high-velocity gun for washing and scouring the manhole floor/benching. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel.
- 3) Mechanically Powered Equipment: Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of 750 feet of rod. The rod shall be specifically heat-treated steel. To ensure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

C. Cleaning Precautions

The Engineer shall supply the Contractor (from the Owner) a notice, to be hand delivered to residents and business owners with information on the sewer cleaning operations and precautions. The Contractor shall assist in delivery of this notice and coordinating the schedule of work to ensure that this notice will be delivered before any sewer line cleaning is started.

During sewer cleaning operations, satisfactory precautions shall be taken in the use of cleaning equipment. When hydraulically propelled cleaning tools (which depend upon water pressure to provide their cleaning force) or tools which retard the flow in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not damage or cause flooding of public or private property being served by the sewer. If such back-ups or flooding occurs, it shall be the Contractors responsibility to respond, coordinate, and pay for, any cleaning and or restoration of private property. When possible, the flow of sewage in the sewer shall be utilized to provide the necessary pressure for hydraulic cleaning devices. When additional water from fire hydrants is necessary to avoid delay in normal work procedures, the water shall be conserved and not used unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.

D. Sewer Cleaning

The designated sewer manhole sections shall be cleaned using hydraulically propelled, high-velocity jet, or mechanically powered equipment. All sewer cleaning shall be scheduled simultaneously with the C.C.T.V. investigation. Selection of the equipment used shall be based on the conditions of lines at the time the work commences. The equipment and methods selected shall be satisfactory to the Owner's representative. The equipment shall be capable of removing dirt, grease, rocks, and other materials and obstructions from the sewer lines and manholes. If cleaning of an entire section cannot be successfully performed from one manhole, the equipment shall be set up on the other manhole and cleaning again attempted. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire manhole section, it will be assumed that a major blockage exists and the cleaning effort shall be abandoned. Refer to Paragraph I (Normal Cleaning) and J (Heavy Cleaning).

E. Root Removal

Roots shall be removed in the designated sections where root intrusion is a problem. Special attention should be used during the cleaning operation to assure almost complete removal of roots from the joints. Any roots which could prevent the seating of the packer and could prevent the proper application of chemical sealants shall be removed. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaners. Chemical root treatment may be used at the option of the Contractor. Before any heavy cleaning and/or root cutting is approved, the contractor shall verify the gas main and services have been staked with elevations confirmed by the gas company. In the event that a gas service is discovered, the contractor shall immediately supply a CCTV report and photo to the Engineer. The CCTV report and photo will then be passed on to the gas company for repair.

F. Chemical Root Treatment

To aid in the removal of roots and at the option of the Contractor, manhole sections that have root intrusion may be treated with an approved herbicide. The application of the herbicide to the roots shall be done in accordance with the manufacturer's recommendations and specifications in such a manner to preclude damage to surrounding vegetation. Any damaged vegetation so designated by the Engineer shall be replaced by the Contractor at no additional cost to the Owner. All safety precautions as recommended by the manufacturer shall be adhered to concerning handling and application of the herbicide.

G. Material Removal

Sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. Passing material from manhole section to manhole section, which could cause line stoppages, accumulations of sand in wet wells, or damage pumping equipment, shall not be permitted.

H. Disposal/Decant of Materials

All dirt, debris, roots and other material removed from the sewers shall be loaded and hauled by the Contractor to an approved waste disposal location secured by the Contractor. Any costs or fees associated with the disposal of the material, including material testing shall be paid by the Contractor. No additional payment will be made for disposal fees and shall be incidental to the cleaning of the sewers. No debris shall be allowed to pass on to downstream portions of the sewer system. The Contractor will be responsible to make provisions to ensure this or clean these sewers at his own expense.

All debris, solids or liquids resulting from the cleaning operations shall be removed from the site and disposed of by a licensed liquid industrial waste hauler in accordance with Act 136 PA 1969, as amended. The Engineer shall be provided a copy of the manifest. The Contractor shall provide for the discharge of the liquid removed from the manholes and into the sanitary sewer system using an approved and designated manhole as specified by the Owner and Engineer. The solid waste generated from the above cleaning operations shall be disposed of at an approved landfill based on the results of material testing, in a manner that complies with applicable local, state and federal laws, rules and regulations for transportation and final disposal of such waste material. All materials shall be removed from the site no less often than at the end of each workday. Under NO circumstances will the Contractor be allowed to accumulate debris, etc., on the site of work.

I. Normal Cleaning

Cleaning shall be defined as follows:

1. Initial Sectioning of the Sewer Line (Step Cleaning): Sectioning shall include a minimum of three passes. The first pass shall extend from the downstream manhole to a point in the sewer equal to 1/3 of the total distance between the manholes which are being cleaned. The second pass shall include 2/3 of the sewer line and the third sectioning pass shall extend the full distance between manholes. All passes shall be made using sufficient capacity of the sewer cleaning equipment.
2. Continuous Cleaning Passes from Manhole to Manhole: Once the sectioning of the sewer line has been completed, the Contractor shall make up to three (3) complete passes from manhole to manhole.

Immediately after the above process has been completed, the Contractor shall visually investigate the sewer line by use of C.C.T.V. This operation must be done utilizing the jet to draw down enough of the existing flow to enable investigation of the bottom of the pipe. If at this time, debris still remains in the sewer, additional cleaning efforts will be paid as "Heavy Cleaning". Payment for "Normal Cleaning" and "Heavy Cleaning" will only be made on the videotaped footage of the sewer line which is clean. All C.C.T.V. investigation necessary to verify the cleanliness of the lines shall be incidental to this item of work. No additional payment will be made for reverse setups other than that sewer which has been cleaned.

J. Heavy Cleaning

The item of work "Heavy Cleaning" of sewers of the size as designated in the proposal shall include all labor, material and equipment required to have the sewer in a clean condition before televising of the sewer. This item will be bid as work supplemental to the normal cleaning as outlined above. It shall be paid for those sewers that require rodding, root cutting or additional cleaning as defined in Paragraph D. "Sewer Cleaning" to accomplish the end result. Before any heavy cleaning and/or root cutting is approved, the contractor shall verify the gas main and services have been staked with elevations confirmed by the gas company. In the event that a gas service is discovered, the contractor shall immediately supply a CCTV report and photo to the Engineer. The CCTV report and photo will then be passed on to the gas company for repair.

Payment shall be at the contract unit price per lineal foot and will be paid in addition to the unit price for cleaning sewers from M.H. to M.H. All C.C.T.V. investigation necessary to verify the cleanliness of the lines shall be incidental to this item of work. No payment will be made on sections of sewer which are not "clean" as verified by the C.C.T.V. investigation.

K. Extra Heavy Cleaning

The item "Extra Heavy Cleaning" of sewers as designated in the proposal shall include all labor, material and equipment required to have the sewer in a clean condition before televising of the sewer. This item will be bid as work supplemental to the normal and heavy cleaning as outlined above. It shall be paid for those sewers that require additional services beyond continuous rodding, root cutting or heavy cleaning as defined in J, "Heavy Cleaning" to accomplish the end result. The Extra Heavy Cleaning item shall only be used when all cleaning and heavy cleaning operations have been exhausted to clean the sewer. The use of "Extra Heavy Cleaning" shall be agreed upon by both the construction observer and the contractor, and shall be approved by the engineer. Payment shall be at the contract unit price per hour and will be paid in addition to the unit price for cleaning and or heavy cleaning sewers from M.H. to M.H. All C.C.T.V. investigation necessary to verify the cleanliness of the lines shall be incidental to this item of work. No payment will be made on sections of sewer which are not "clean" as verified by the C.C.T.V. investigation.

L. Final Acceptance

Acceptance of sewer line cleaning shall be made upon the successful completion of the C.C.T.V. investigation and shall be to the satisfaction of the Owner's representative. If C.C.T.V. investigation shows the cleaning to be unsatisfactory, the Contractor shall be required to reclean and reinvestigate the sewer line until the cleaning is shown to be satisfactory.

2. FINAL TV INVESTIGATION AND LOG

The items of work "Final TV Investigation and Log" of the size as designated in the proposal will include all labor, material and equipment required to complete the work. The investigation shall be performed by a NASSCO Pipeline Assessment and Certification Program (PACP®) certified operator. All C.C.T.V. investigation will be done simultaneous with the cleaning process and approved by the Owner's representative.

Information concerning depths of flow, manhole depths, air quality in the sewers, accessibility of manholes, traffic conditions, and other safety considerations are to be the sole responsibility of the Contractor to obtain and incorporate the necessary provisions into the overall contract price to complete the specified work under the conditions existing in the sewers to be investigated.

The contractor will be required to submit sample video recordings from recently completed projects demonstrating the picture quality obtained for pipe diameters ranging between 8 to 96 inches. The intent is to ensure that the best possible picture quality is made available to the Owner.

All C.C.T.V. investigation shall be recorded on approved media which shall be turned over to the Owner. The recording must be made on continuous approved video media on which audio and colored video information can be recorded. The speed and electronics of the approved media shall be equal to that which can be played back on a standardized recorder of the electronics industry. The recording shall be made on a hard drive.

The investigation shall involve visual observation showing the running footage, manhole to manhole section and street or easement at all times on screen in all video recordings. The investigation shall be performed at a rate of speed which will allow examination of each manhole, all points of infiltration, cracked or crushed pipe, defective joints, misalignment in line or grade and location of wye openings.

As part of the C.C.T.V. investigation, all manholes shall be panned to show any and all connections along with its overall condition, the precise location of each wye and any problem areas. These locations shall be entered on the investigation forms supplied by the Contractor. The C.C.T.V. investigation shall be done only during dry weather conditions. Televising shall not be performed if there is any fog in the sewer such as occurs during cold weather conditions. All C.C.T.V. investigation shall be observed by the designated representative of the Owner. Any C.C.T.V. investigation performed in the absence of the representative of the Owner will not be considered for payment.

The color television camera used for the investigation shall be one specifically designed and constructed for such investigation. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera, pan and tilt, shall be operative in 100% humidity conditions, and have a high resolution lens capable of scanning 360-degrees circumference and 270-degrees on a horizontal axis to televise sewer lines and laterals. The camera, television monitor, and other components of the video system shall be capable of producing picture quality to the satisfaction of the Owner's Representative; and if unsatisfactory, equipment shall be removed and no payment will be made for an unsatisfactory investigation. The camera shall be moved through the line in either direction at a moderate rate, stopping when necessary to permit proper documentation of the sewer's condition. The camera shall be stopped immediately adjacent to each service connection and rotated to allow viewing into the service lead. This will allow verification that the lead is in service and provide accurate stationing for the connection. In no case will the C.C.T.V. camera be pulled at a speed greater than 30 feet per minute. Manual winches, power winches, TV cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions shall be used to move the camera through the sewer line. If, during the investigation operation, the C.C.T.V. camera will not pass through the entire manhole section, the contractor shall set up his equipment so that the investigation can be performed from the opposite manhole. If, again, the camera fails to pass through the entire manhole section, the investigation shall, for this project, be considered complete and no additional investigation work will be required unless directed by the Owner or the Engineer.

If the camera encounters a dip in the sewer such that water is standing above the springline of the sewer pipe, and if the camera lens becomes submerged because of this condition, the camera rig shall be withdrawn from the sewer and inserted from the other end as far as possible. At all times, backflooding into the reach from the adjacent section shall be prevented. If an obstruction in the sewer line prohibits the continuation of the C.C.T.V. investigation, the Contractor shall set up on the other manhole and continue recording in the reverse direction until the obstruction is met. Payment for reverse setups will be based upon the total footage videotaped. No additional payment will be made.

If camera or other equipment becomes seized in a sewer and excavation is required to retrieve the equipment, all excavation, material, backfill and restoration shall be completed at no additional cost to the Owner.

A report detailing all notes, wye locations, and other pertinent information shall be made as a part of the C.C.T.V. investigation in accordance with NASSCO's PACP®. The report shall be produced using C.C.T.V. inspection software provided by a NASSCO PACP® certified vendor. All C.C.T.V. reports shall be down loaded or recorded on board the C.C.T.V. vehicle. Formatting and layout, i.e., observations and defect codes, shall be NASSCO PACP® standard. At the end of each work day, the contractor shall provide the Owner's representative with the approved video media that includes all critical sewer defects encountered that day, along with a copy of the inspection report for the applicable manhole to manhole section(s). Two (2) tabulated color copies of the reports shall be delivered to the Engineer no later than 30 (thirty) days after project completion. Each report shall be bounded in a three ring binder and include a table of contents and the videos on a hard drive.

The video shall be recorded such that the sewer lines are recorded in consecutive order, from the work schedule, starting at the upstream manhole and proceeding downstream as shown on the plans. Reports shall follow in the same order as the provided work schedule. The following information shall be recorded on the reports:

1. Contractor Name
2. Date
3. Pipe ID, Pipe Size, Length, Material, and Shape
4. Engineer or Construction Observer
5. Customer's Name
6. Project Name and Number
7. Location of Current Recording
8. Upstream and Downstream Manhole Numbers, Address of Closest House
9. Camera Direction
10. Direction of Flow
11. Wye Location by Station Quadrant and condition
12. Type of Pipe (Sanitary, Storm, Combined, Process, Force Main)
13. Type of Joint and Length between Joints
14. Manhole Condition
15. Drop from Manhole Rim to Invert of Sewer
16. Cross section or profile of sewer
17. Plan view of sewer and laterals
18. Camera Operator and PACP Certification Number
19. Defects; Station, Quadrant, Type, Severity, Coded with Scores

In addition, other points of significance such as locations of building sewers, unusual conditions, roots, sewer connections, broken pipe, presence of scale and corrosion, and other discernible features will be recorded and a copy of such records will be supplied to the Owner. All media shall be delivered to the Engineer at the same time as the corresponding reports.

Payment for "Final TV Investigation and Log" will be on the basis of unit prices per lineal foot of sewer for the sizes shown on the drawings and listed in the proposal. No payment will be made on lengths of sewer where the lens is obscured by debris which should have been removed during cleaning or on sections of sewer which were not recorded due to obstructions or collapse or on sections of sewer for which video and/or inspection reports have not been submitted to the Engineer. Measurement for length shall be horizontally along the sewer through manholes, bends, with no deductions for same, and measured to the inside face of walls of all special structures.

3. CUTTING SERVICE LEAD PROTRUSIONS

This item of work shall include all labor, equipment and material necessary to cut protruding laterals and/or remove roots and/or mineral deposits in laterals that intrude into the sewer main. Contractor shall cut back any size service lead protrusions and remove roots/mineral deposits to a maximum protrusion of 1". This work shall be accomplished with video monitored remote controlled cutting devices, or other approved method. Use of closed circuit monitoring devices shall be included in this item of work.

Payment for this item of work shall be at the contract unit price per each lateral that protruding laterals are cut and/or roots/mineral deposits are removed.

4. MINERAL DEPOSIT, REM

This item of work shall include all labor, equipment and material necessary to remove mineral deposits from pipe joints or cracks which in the opinion of the Owner/Engineer is obstructing the camera and flow carrying capacity of the sewer line. This work shall be accomplished with video monitored remote controlled cutting devices, high-velocity cutting nozzles or other approved devices.

Payment for this item of work shall be at the contract unit price per each joint or crack location. Use of closed circuit monitoring devices shall be included in this item of work.

5. DISPOSAL OF DEBRIS

All dirt, debris, roots and other material removed from the sewers shall be loaded and hauled by the Contractor to an approved waste disposal location secured by the Contractor. Any costs or fees associated with the disposal of the material shall be paid by the Contractor. No additional payment will be made for disposal fees. It shall be incidental to the cleaning of the sewers. No debris will be allowed to pass on to downstream portions of the sewer system. The Contractor will be responsible to make provisions to ensure this or clean these sewers at his own expense.

6. INCIDENTAL WORK

All items of work noted on the plans or in the specifications that are not specifically noted in the proposal, shall be considered as included in the construction and shall be constructed at no extra cost to the Owner. All surface restoration work shall be included in the contract unit prices.

7. WORK COMPLETED WITHIN REAR YARD EASEMENTS

The Contractor shall obtain written permission to enter on to any private property affected by the cleaning operations.

The Contractor shall be responsible for notifying any residents as to the work which is contemplated and obtaining permission for any work which may be done on private property.

Several manholes are located in areas which may prevent free and easy access (i.e. - under fences, buried, etc.). Each structure should be evaluated with respect to the proposed cleaning operations and considered in the bid. All disturbed areas shall be restored to a condition equal to or better than exists.

8. DELIVERABLES

1. A sample electronic copy of the PACP database, video pipe recordings, reports, calculations and rankings shall be provided to the ENGINEER for review and approval prior to start of any field work.

ALL CCTV reports, logs, and video shall be capable of being integrated in ArcGIS. All GIS deliverables shall be provided in table, shapefile, or file geodatabase format.

All reports and logs shall be in PDF format and named by Pipe Identification Number provided in the work schedule. In the event that two videos are required for a single segment of pipe, the files shall be named in the format of Pipe Identification Number, followed by an "R".

All data in the reports should be available in a one-to-one table (Microsoft Excel is preferred), and all photos and videos should be named by Pipe Identification Number.

The Contractor shall provide a sample of the data output before any deliverables are produced and/or approved by the ENGINEER.

Work schedule and maps have been provided for reference only. All work shall be recorded and submitted as described in the specifications.

2. Deliverables shall be submitted to the ENGINEER on a flash drive within 10 working days of the televising of that sewer segment. CONTRACTOR and ENGINEER shall agree in advance of location and time of the bi-weekly deliveries. Revisions requested by the ENGINEER and/or OWNER shall be incorporated into the reports/logs and database at no additional cost.
3. At the conclusion of the Sewer Televising, two hard copies of the PACP CCTV Reports/Logs shall be delivered to the ENGINEER within 15 working days of completion of all fieldwork. The completed logs shall be placed in 3-ring binders with proper tabs and report cover.
4. At the conclusion of the Sewer Televising, two electronic copies of the entire and final televised program, including PACP database, video pipe recordings, reports, calculations and rankings shall be provided to the ENGINEER on two separate flash drives or portable hard drives. Each drive shall contain the entire package of information in one database. The data shall be provided within 15 working days of completion of field work. The information shall not be split into several drives. The flash drives or portable hard drives and information within it shall become the property of the OWNER.

Payment for this item of work shall be paid as a lump sum upon complete delivery, review and acceptance by the Engineer of the digital copy(video and reports) and hard copies(reports) of the investigation results within 30 (thirty) days from completion of the Project.

FULL LENGTH CURED-IN-PLACE PIPE SPECIFICATIONS (CIPP)

The provisions of this section are intended to supplement or take precedence over the General Conditions, General Requirements, Sanitary Sewer Specifications and Cleaning and Television Specifications of the Contract Documents.

1. INTENT

It is the intent of this specification to provide for the reconstruction of existing pipelines and conduits by the installation of cured-in-place pipe (CIPP). A CIPP is formed by the insertion of a resin-impregnated flexible felt tube into the existing pipe. The tube is expanded with water in an inversion process to fit against the original conduit, and then heated to cure the resin. The finished product is a joint less, structural pipe that is formed to the existing pipe.

2. REFERENCED DOCUMENTS

This specification references the current American Society for Testing and Materials (ASTM F1216, D5813, D790), National Association of Sewer Service Companies (NASSCO), and American Water Works Association (AWWA) standards which are made part hereof by such reference, and shall be the latest edition and revision thereof. If there is a conflict between these standards and this specification, this specification will govern.

3. PRODUCT INFORMATION

No product will be allowed to be bid or installed without submittal of test data supporting the following product performance requirements. Product samples used for testing shall be similar to those proposed for installation. Test samples shall be prepared so as to simulate installation methods and trauma of the product.

Chemical resistance - Tests shall be conducted in accordance with ASTM F 1216, and meet the minimum guidelines listed therein.

Long-term properties - Tests to confirm 50-year design values shall be conducted in accordance with ASTM D 2990. As an alternative, third party testing by the Trenchless Technology Center (TTC) at Louisiana Technical University of a 10,000 hour external loading test, conducted in a wet environment to simulate field conditions, can be used to verify long-term design values.

4. MATERIALS

The tube shall consist of one or more layers of absorbent fabric capable of carrying resin, and capable of withstanding installation pressures and curing temperatures. The tube shall be compatible with the resin system used. The tube material shall be able to stretch to fit irregular pipe sections and negotiate bends. The outside layer of the tube shall be plastic coated with a material that is compatible with the resin system used. The tube should be fabricated to size that, when installed, will fit the internal circumference and the length of the existing pipe. Allowance should be made for circumferential stretch during installation. The outside of the tube shall be marked along its full length at regular intervals not to exceed five (5) feet. Such markings shall include the manufacturers name or identifying symbol. The wetout tube shall have a uniform thickness that when compressed at installation pressures will meet or exceed the design thickness.

The tube shall be to a size that when installed will tightly fit the internal circumference and length of the original pipe. Allowance should be made for circumferential stretching during inversion. Overlapping layers of felt, that cause lumps in the final product, shall not be utilized.

The outside layer of the tube (before wetout) shall be plastic coated, a translucent flexible membrane that clearly allows inspection of the resin impregnation (wetout) procedure. The plastic coating shall separate the resin inside the tube from the inversion water without leakage, accommodate inversion, stretch to size and shall not delaminate before, during, or after curing.

The tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the tube that may cause delamination in the cured-in-place pipe. No dry or unsaturated layers shall be evident.

The wall color of the interior pipe surface of C.I.P.P. after installation shall be a light reflective color so that a clear detail examination with closed circuit television inspection equipment may be made. Seams in the tube shall be stronger than the unseamed felt. Where the length requires joining, the joint shall not be perpendicular to the long axis but spirally formed and joined.

The resin used shall be a thermoset resin system that is compatible with the cured-in-place pipe installation. The resin shall be able to cure in the presence of water and the initiation temperature for cure shall be less than 180°F. The resin system shall be a corrosion resistant polyester, vinyl ester, or epoxy and catalyst system that when properly cured within the tube composite meets the requirements of ASTM F-1216-93 and D5813, the physical properties herein, and those which are to be utilized in the design of the C.I.P.P. for this project.

C.I.P.P. Field Samples - To verify physical properties, the Manufacturer shall submit a minimum of 15 test results from previous field installations of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the C.I.P.P physical properties specified have been achieved in previous field applications.

5. STRUCTURAL REQUIREMENTS

The C.I.P.P. shall be designed as per ASTM F1216-93, Appendix X1. The C.I.P.P. design shall assume no bonding to the original pipe wall.

The layers of the cured C.I.P.P. shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If separation of the layers occurs during testing of field samples, new samples will be cut from the work. Any reoccurrence may cause rejection of the work.

The cured pipe material (C.I.P.P.) shall conform to the structural properties, as listed below:

	Minimum Physical Properties	
	<u>Test Method</u>	<u>Resin with 400,000 psi Properties</u>
Modulus of Elasticity	ASTM D-790 (short term)	400,000 psi
Flexural Stress	ASTM D-790	4,500 psi

The required structural C.I.P.P. wall thickness shall be based as a minimum, on the physical properties listed above and in accordance with the Design Equations in the appendix of ASTM F-1216-93, and the following design parameters:

Design Safety Factor = 2.0

Retention Factor for Long-Term Flexural Modulus to be used
in Design (To be multiplied by short-term modulus to obtain long-
term design modulus) = 50%

Ovality = See Video Media

Groundwater Depth (above invert) = ½ Soil Depth (ft)

Soil Depth (above invert) = Field Verification by Contractor

Soil Modulus = 1000 Psi

Soil Density = 120 pcf

Live Load = AASHTO H-20
when the CIPP is
= in roadway

Design Condition = Fully Deteriorated

6. DESIGN ANALYSIS

The basis of design used for the product must be submitted for review and approval. Physical properties used in design equations must be validated by independent testing of product samples from ten previous projects. Physical values derived from laboratory samples will not be allowed. The design calculations shall be signed and sealed by a professional engineer prior to any CIPP installation.

7. MANUFACTURING AND QUALITY CONTROL

Detailed information describing the method of manufacturing and the final composition of the rehabilitation materials shall be provided. This information must also include descriptions of any major components not directly provided by the Manufacturer.

Documentation shall be submitted as to the country of the manufacturer of all components used to produce the final installed product. Detailed quality control procedures for rehabilitation materials, manufacturing and installation shall be submitted. This shall include inspection requirements, testing procedures, and allowable manufacturing tolerance levels.

All related ASTM standards, or any nationally recognized standards, for product manufacturing must be submitted.

8. INSTALLATION

An itemized list detailing the installation procedures shall be submitted. This shall include estimated times for each task, lateral reinstatement, the methods and number of required excavations and any other items unique to each process.

Installer shall submit evidence of being trained to install the Product.

All related ASTM standards, or any nationally recognized standards, for installation of the product shall be adhered to.

Detailed procedures shall be submitted for repairing the product in the event of failure or future damage. These procedures should not require specialized training and/or equipment for the Owners' maintenance crews.

Detailed procedures shall be submitted for future tapping of service connections in to the product. The procedures should not require specialized training and/or equipment for the Owner's maintenance.

A. General

- 1) It shall be the responsibility of the Owner to locate and designate all manhole access points, insure that they are accessible for the work, and provide rights of access to these points. If a street must be closed to traffic because of the orientation of the sewer, the Contractor shall institute the actions necessary upon approval by the Owner or the Local Road Agency to do this for the mutually agreed time period. The Owner shall also provide access to water hydrants for cleaning, inversion and other work items requiring water. The Contractor will use an appropriate backflow preventer on all water hydrants and calculate the amount of water used in gallons. Only those hydrants approved by the Owner's local Water Department shall be used by the Contractor.
- 2) The Contractor will be responsible for securing any permits that may be required for the use of hydrants from the local water department in which the work is being done.
- 3) Prior to installing the (C.I.P.P.), the Contractor shall notify all property owners who will be without sanitary sewer service during the installation period and inform them that they should limit their water use. Once the installation is complete, and the sewer lead has been reconnected, the Contractor shall notify that property owner that sanitary sewer service has been reestablished and curtailment of water use is no longer necessary. This shall be accomplished with the Contractor's handout notice as approved by the Engineer.
- 4) The Contractor shall perform all operations in full accordance with all applicable OSHA/MIOSHA standards. It is the Contractor's responsibility to obtain all permits required and have available on-site all safety apparatuses as required.
- 5) The Contractor shall submit a confined space entry program to the Owner per OSHA/MIOSHA requirements prior to the start of construction. Contractor shall submit and receive all required permits prior to the commencement of work.

B. Public Notification

- 1) The contractor shall make every effort to maintain service usage throughout the duration of the project. In the event that a service becomes out of commission, the maximum amount of time of no service shall be 12 hours for any property served by the sewer. A public notification program shall be implemented, and shall as a minimum, require the contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The contractor shall provide the following:
 - a) Written notice to be delivered to each home or business describing the work, schedule, how it affects them, and a local telephone number of the contractor they can call to discuss the project or any problems which could arise.

- b) Personal contact and attempted written notice the day prior to the beginning of work being conducted on the section relative to the residents affected.
- c) Personal contact with any home or business which cannot be reconnected within the time stated in the written notice.

C. Cleaning and Inspection (Pre-TV)

Cleaning and inspection shall be in accordance with the Cleaning and Television Specifications, with normal, heavy and extra heavy cleaning being included in the price of pre tv work. Submittal of video footage and inspection reports shall be in accordance with "Final TV Investigation and Log" and "Deliverables" of the Cleaning and Television Specifications. Cleaning and inspections shall be paid for as the item of work "Sanitary Sewer, Pre-Construction, Clean and CCTV" of the appropriate size sewer.

D. Lateral, Preparation

This item of work shall include all labor, equipment and materials necessary to open obstructed services noted in the pre-tv investigation. Obstructed services shall consist of any service lateral that is restricted by more than 50% with mineral deposits and/or roots. The Contractor shall cut and remove roots and/or mineral deposits to allow a 90% clear opening in the service lateral. This work shall be accomplished with video monitored remote controlled cutting devices, or other approved methods. Use of closed circuit monitoring devices shall be included in this item of work.

Payment for this item of work shall be at the contract unit price per each lateral that is cleared of obstructions.

E. Resin Impregnation

- 1) The tube should be vacuum-impregnated with resin (wet-out) under controlled conditions. The volume of resin used should be sufficient to fill all voids in the tube material at nominal thickness and diameter. The volume should be adjusted by adding excess resin for the change in resin volume due to polymerization and to allow for any migration of resin into the cracks and joints in the original pipe. A roller system shall be used to uniformly distribute the resin throughout the tube.
- 2) The Installer shall designate a location where the CIPP will be vacuum-impregnated prior to installation. The Installer shall allow the Owner's representative to inspect the materials and procedures used to vacuum-impregnate the tube.

F. Bypassing

- 1) If the Contractor deems it is necessary to bypass pump the flow in the sewer being rehabilitated, the Engineer and Owner must approve of the bypass pumping.

- 2) If bypassing of the flow is required around the sections of pipe designated for reconstruction, the bypass should be made by plugging the line at a point upstream of the pipe to be reconstructed and pumping the flow to a downstream point or adjacent system. The pump and bypass lines should be of adequate capacity and size to handle the flow. Services within this reach will be temporarily out of service.
- 3) Public advisory services will be required to notify all parties whose service laterals will be out of commission and to advise against water usage until the mainline is back in service.

G. Installation of C.I.P.P.

- 1) The wet out tube shall be inserted through an existing manhole or approved access point by means of an inversion process and the application of a hydrostatic head sufficient to extend it to the next designated manhole or termination point.
- 2) Tube installation forces or pressures shall be limited so as not to stretch the tube longitudinally by more than 5% of the original length.
- 3) Before the installation begins, the tube manufacturer shall provide the minimum pressure required to hold the tube tight against the existing conduit, and the maximum allowable pressure so as not to damage the tube. Once the installation has started, the pressure shall be maintained between the minimum and maximum pressures until the installation has been completed.
- 4) No Pull-in method shall be utilized. The unrolling action of the tube during inversion is necessary to minimize gouging and for stretching and accommodating bends encountered. Also, for non-circular sections the tube inversion will minimize folds and uneven stretching which would result in thinning of the upper portion of the CIPP.
- 5) Temperature gauges shall be placed to determine the temperature of the incoming and outgoing water from the heat source. Another such gauge shall be placed inside the tube at the invert level at the remote end to determine the temperature at that location during the cure cycle.
- 6) Curing shall be accomplished by utilizing hot water under hydrostatic pressure.
- 7) The use of a lubricant during inversion is recommended to reduce friction. This lubricant should be poured into the water in the downtube or applied directly to the tube or inflation bladder. Lubricant shall not be used in process where impermeable coatings are perforated prior to tube installation. The lubricant used should be a nontoxic, oil-based product that has no detrimental effects on the tube or boiler and pump system, will not support the growth of bacteria, and will not adversely affect the fluid to be transported.

H. Curing

- 1) After installation is completed, suitable heat source and water recirculation equipment is required to circulate heated water throughout the pipe. The equipment should be capable of delivering hot water throughout the section to uniformly raise the water temperature above the temperature required to effect a cure of the resin. Water temperature in the line during the cure period should be as recommended by the resin manufacturer.
- 2) The heat source should be fitted with suitable monitors to gauge the temperature of the incoming and outgoing water supply. Another such gauge should be placed between the impregnated tube and the pipe invert at the termination to determine the temperatures during cure.
- 3) Initial cure will occur during temperature heat-up and is completed when exposed portions of the new pipe appear to be hard and sound and the remote temperature sensor indicates that the temperature is of a magnitude to realize an exotherm or cure in the resin. After initial cure is reached, the temperature should be raised to the post-cure temperature recommended by the resin manufacturer. The post-cure temperature should be held for a period as recommended by the resin manufacturer, during which time the recirculation of the water and cycling of the boiler to maintain the temperature continues. The curing of the C.I.P.P. must take into account the existing pipe material, the resin system, and ground conditions (temperature, moisture level, and thermal conductivity of soil).

I. Cool-Down

- 1) The C.I.P.P. should be cooled to a temperature below 100°F (38°C) before relieving the hydrostatic head. Cool-down may be accomplished by the introduction of cool water into the C.I.P.P. to replace water being drained from a small hole made in the downstream end. Care should be taken in the release of the static head so that a vacuum will not be developed that could damage the newly installed pipe.

J. Workmanship

- 1) The finished pipe should be continuous over the entire length of an installation run and be free of dry spots, lifts, and delaminations. If these conditions are present, remove and replace the C.I.P.P. in these areas.
- 2) If the C.I.P.P. does not fit tightly against the original pipe at its termination point(s), the space between the pipes should be sealed by filling with a resin mixture compatible with the C.I.P.P.

K. Lateral, Reinstall

After the liner has been cured, the Contractor shall reconnect only the existing active service connections. This is to be done without excavation and from the interior of the newly installed liner by the use of a remote-controlled cutting device. All active connections shall be satisfactorily opened to the approximate size and shape of the original opening and shall be smooth and flush wherever there is a chance of debris buildup. If a service connection has been deemed inactive by the Engineer, it can be left unopened. All opened services shall be finished brushed. The Contractor shall certify he has a minimum of 2 complete working cutters plus spare key components on the site before each inversion. No additional payment will be made for excavations for the purpose of reopening service connections and the Contractor will be responsible for all costs associated with such excavation and restoration work. Any damages occurring from services which are not re-opened shall be incurred solely by the Contractor.

11. TESTING

Before any C.I.P.P. is installed, the Contractor shall secure the services of a qualified testing lab to perform the outlined tests. The Contractor shall schedule the installation to accommodate such testing and follow a chain of custody record form, provided by the Engineer, in logging the samples.

For each inversion length and location included in the work schedule, one C.I.P.P. sample shall be cut from a section of cured C.I.P.P. at an intermediate manhole or at the termination point that has been inverted through a like diameter pipe which has been held in place by a suitable heat sink, such as sandbags. (Note: In areas with limited space and larger diameter pipes, other sampling techniques may be required).

The sample should be large enough to provide a minimum of three specimens and a recommended five specimens for flexural testing and also for tensile testing, if applicable. The full C.I.P.P. sample wall thickness shall be tested, whenever possible. If the sample is irregular, distorted, or of such thickness that proper testing is inhibited, then the wall thickness shall be machined away from the inside pipe face of the sample only. Thus, the test specimen shall be cut from the outside pipe face of the C.I.P.P. sample. For specimens greater than ½ inch (12.70 mm) depth, the width-to-depth ratio of the specimen shall be increased to a minimum of 1:1 and shall not exceed 4:1. Test specimens shall be oriented on the testing machine with the interior surface of the C.I.P.P. in tension. The following test procedures should be followed after the sample is cured and removed.

Flexural (Bending) Properties - The initial tangent flexural modulus of elasticity and flexural stress should be measured for gravity and pressure pipe applications in accordance with Test Method D 790, Test Method I Procedure A, and should meet the requirements of Section 14 and 18.

Tensile Properties - The tensile strength should be measured for pressure pipe applications in accordance with Test Method D 638 and must meet the requirements of Section 14 and 18.

Gravity Pipe Leakage Testing - Leakage testing of the C.I.P.P. shall be conducted during cure while under hydrostatic pressure. For C.I.P.P. products in which the pipe wall is cured while not in direct contact with the pressurizing fluid, (e.g. a removable inflation bladder is used) the C.I.P.P. must be leakage tested in accordance with ASTM F1417.

*All testing results will be reviewed by the Engineer for compliance with Contract specifications. As-built testing will be included, and shall be included in the unit price per foot for C.I.P.P. installed.

12. INSPECTION AND ACCEPTANCE (Post-TV)

Prior to any post video of the affected sewer, the line shall be flushed and made free of any debris that may obstruct the view of the entire pipe. The installation may be inspected visually if appropriate, or by closed-circuit television if visual inspection cannot be accomplished. Inspection and acceptance shall be paid for as the item of work "Sanitary Sewer, Post-Construction, CCTV" of the appropriate size sewer. Variations from true line and grade may be inherent because of the conditions of the original piping. No infiltration of groundwater should be observed. All service connections should be accounted for and be unobstructed, including drop connections.

Submittal of video footage and inspection reports shall be in accordance with "Deliverables" of the Cleaning and Television Specifications. The Contractor shall provide two (2) copies of an external hard drive, which shall include inspection logs/index, reports for both the pre- and post-television inspection of the sewer in consecutive order, and all third party test results. The hard drive, inspection logs, reports for both the pre- and post- television inspections, and testing results shall be securely bound in a three ring binder or other method approved by the engineer. Any loose (not bound) project material will not be accepted.

CITY OF EASTPOINTE
SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC

AEW / mav

1 of 8

0145-0653

a. Description. This work shall consist of all labor, materials and equipment required to maintain traffic in accordance with this Special Provision for work on various streets in the City of Eastpointe.

b. General. Traffic shall be maintained by the Contractor throughout the project in accordance with Sections 104.07, 104.11, and 812 of the 2012 MDOT Standard Specifications for Construction, the 2011 Michigan Manual on Uniform Traffic Control Devices (MMUTCD), this Special Provision, and any Supplemental Specifications in the Proposal.

1. The Contractor shall coordinate his work with other Contractors that may be performing work within the Construction Influence Area (C.I.A.), or adjoining areas, to avoid conflicts in the maintenance of traffic or construction signing, and to provide for the orderly and safe progress of contract work.
2. The Contractor shall notify the Engineer a minimum of three business days prior to the implementation of any detours, road closures, sidewalk closures, lane closures, or major traffic shifts.
3. The Contractor shall contact local public safety departments within three business days of all detours, road closures, sidewalk closures, and lane closures prior to the start of that closure being implemented.

c. Construction Influence Area (CIA). The CIA shall include the areas within the right-of-way of the roads where work is being proposed:

1. On roads where work is taking place, the CIA shall be from the point where advanced construction warning signing begins to the point where construction warning signing ends.
2. The CIA shall also include the cross streets, from the point where advanced construction warning signing begins, or 500 feet in advance of the work, whichever is greater:

d. Work Restrictions.

1. Allowable work hours will be controlled by Local Ordinances. All work shall be performed between the hours of 7:00am and 7:00pm Monday through

Saturday. Work hours may be extended beyond 7:00pm with the prior approval of the Engineer to perform service reinstatements or to prepare the site for maintaining traffic during non-working hours. No work shall be performed on Sundays and Holidays, unless special permission is granted by the City of Eastpointe.

e. Traffic Restrictions - General.

1. No work shall be performed during holiday periods as defined by the Engineer. Observed dates for these holidays will be discussed prior to construction.
2. The hours described in this special provision may be modified or changed by the Engineer due to holidays, special events or traffic volumes.
3. At least one lane of traffic must be maintained in each direction on major roads and at least one lane for minor cross streets unless otherwise indicated.
4. Changes or adjustments of sign locations as shown in the signing typicals and proposed staging plans provided may be necessary to fit field conditions or as determined by the Engineer.
5. Access for emergency vehicles (fire, ambulance, and police) shall be maintained at all times as directed by the Engineer.
6. Access must be maintained to commercial establishments and private roads at all times as directed by the Engineer.
7. Access to side streets must be maintained where directed by the Engineer.
8. Parking of the Contractor's employee's vehicles will not be allowed within the construction zone, except in areas determined by the Engineer.
9. Parking of the Contractor's or his employee vehicles will not be allowed in private parking lots unless written consent from the property owner has been received and supplied to the Engineer.
10. When lane closures are in place, completely cover or remove all conflicting warning, regulatory, and guide signs that are not applicable during construction.
11. Permanent signs that are improperly covered or damaged due to work on this project shall be replaced in kind by the Contractor at their own expense.
12. Prior to opening any lanes to traffic, remove (sweep and vacuum) all debris.

f. Traffic Restrictions.

1. A single lane closure may be implemented on northbound Gratiot Avenue (M-3) outside of the hours of 2:30 pm to 7:30 pm Monday through Friday, and on southbound Gratiot Avenue (M-3) outside of the hours of 5:30 am to 9:30 am Monday through Friday. Lane closures will not be permitted if the contractor is not actively working. Refer to maintaining traffic typical M0070a or M0080a for advanced warning signage detail, and maintaining traffic typical M0730a for a single lane closure. A shoulder (parking lane) closure may be implemented on Gratiot Avenue. Maintaining traffic typical M0880a shall be used for a shoulder (parking lane) closure.
2. A single lane or a two lane closure may be implemented on 10 Mile Road. Lane closures will not be permitted if the contractor is not actively working. Refer to maintaining traffic typical M0040a or M0050a for advanced warning signage detail. Maintaining traffic M0240a shall be used for a single lane closure. Maintaining traffic M0300a shall be used for a two lane closure.
3. A single lane or shoulder (parking lane) closure may be implemented on Stephens Road, Toepfer Road, and Beaconsfield Road. Lane closures will not be permitted if the contractor is not actively working. Refer to maintaining traffic typical M0040a or M0050a for advanced warning signage detail. Maintaining traffic typical M0220a shall be used for the single lane closure. Traffic Regulator control may be required during certain times of day as directed by the Engineer.
4. A single lane closure may be implemented on Kelly Road. Lane closures will not be permitted if the contractor is not actively working. Refer to maintaining traffic typical M0070a or M0080a for advanced warning signage detail, and maintaining traffic typical M0730a for a single lane closure.
5. A single lane or a two lane closure may be implemented on 9 Mile Road. Lane closures will not be permitted if the contractor is not actively working. Refer to maintaining traffic typical M0040a or M0050a for advanced warning signage detail. Maintaining traffic M0400a shall be used for a single lane closure. Maintaining traffic M0430a shall be used for a two lane closure.
6. A single lane closure on a minor street may be implemented using maintaining traffic typical (TA-18) in the 2011 MMUTCD, or as directed by the Engineer.
7. Minor roads and non-signalized intersections may be closed as directed by the Engineer.

8. Pedestrian access must be maintained at all times, but may be limited to one side of the road at a time. Pedestrian detours shall be implemented as determined by the Engineer. Where portions of the sidewalk are being replaced, the Contractor shall provide safe passage around the construction zone for pedestrians. The Contractor shall also cover pedestrian traffic signals that conflict with sidewalk and/or crosswalk closures.
9. Maintain temporary crosswalks, sidewalk, and sidewalk ramps with gravel as directed by the Engineer.
10. Maintain access to all mailboxes during construction.

g. Construction Staging. The traffic control required by this special provision is based on the suggested sequence of operations. The following is a brief description of traffic control required during each suggested construction stage.

1. Erect advance warning signage along the road where work is taking place, and along minor cross streets within the work zone where traffic may enter the work zone. Erect detour signage for major road closures as directed by the Engineer.
2. For daily lane closures, close the lane or shoulder required to access a manhole, or over a sewer line repair. Maintain traffic around the closure unless otherwise directed by the Engineer. Place temporary channelizing devices to allow for 11' wide drive lanes (10' minimum).

Perform the repair work as designated in the Contract. Maintain access to minor streets and commercial driveways as shown. Maintain pedestrian access as directed by the Engineer. Utilize Traffic Regulators as needed to maintain traffic during paving operations. Minimize concrete hauling unit traffic on the grade.

3. Remove the lane closure at the end of the work day unless an open excavation would prohibit re-opening the road to traffic. Install steel plating, where directed by the Engineer, to maintain traffic over an open excavation that will not be immediately restored. Provide appropriate advance warning signage, such as "BUMP" (W8-1) or other as approved by the Engineer.
4. Re-install permanent signs and pavement markings that may have been removed or obliterated during construction. Complete site cleanup and restoration. Utilize the existing lane restriction, as well as "Traffic Regulator Control" and "Minor Traf Devices" as necessary to provide safe and orderly traffic operations through or around the construction zone. The road shall be opened to traffic after permanent signs and pavement markings have been installed. Remaining work may be performed under Traffic Regulator Control

or utilizing temporary lane restrictions in accordance with the MDOT maintaining traffic typical. Maintain "ROAD WORK AHEAD" (W20-1) signs along the roads under construction, in advance of the work zone, until all construction activities have been completed.

h. Traffic Control Devices.

1. General.

- A. All traffic control devices and their usage shall conform to the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD), and as specified in the plans or proposal.
- B. All items used for maintaining traffic shall meet "acceptable" criteria as defined by the American Traffic Safety Service Association (ATSSA) "Quality Guidelines for Work Zone Traffic Control Devices and Features"
- C. The Contractor shall routinely maintain all traffic control devices. The Contractor shall be responsible for reviewing the adequacy and maintenance of all traffic control devices at least once per day everyday for the duration of this project.
- D. Traffic control devices used on this project shall comply with NCHRP 350 where applicable.
- E. The Contractor shall be responsible for protecting the work area and must supply the necessary traffic control devices apart from those called for on the plans or in this specification to delineate the work area from the adjacent property.

2. Temporary Signs.

- A. All temporary signs used on this project shall be fabricated utilizing prismatic retro-reflective sheeting.
- B. All diamond warning signs shall be 36" x 36".
- C. All temporary signs shall have a minimum bottom height of 7'.
- D. All warning signs with supplemental plaques shown below the warning sign shall be placed on separate supports under the parent sign. The minimum bottom height of the supplemental plaque shall not be less than 1' below the normal bottom height of the parent sign.
- E. No signs shall be attached to Type III Barricades.

- F. Unless otherwise noted on the sign layout plans, all temporary special signs shall be installed on steel posts. The cost of steel posts, portable supports, and the cost of relocating the sign and supports, shall be included in the cost of the sign.
 - G. Temporary sign supports shall be designed in accordance with the MDOT chart for wind loading.
 - H. The Contractor shall place W20-1 (ROAD WORK AHEAD) signs on all intersecting local roads where construction activities may be encountered.
 - I. Unless otherwise noted on the plans, all applicable existing/proposed signs are assumed to be in place during construction. All existing signs in conflict with the temporary traffic control shall be covered. Conflicting Type II and III signs shall be identified in the field by the Engineer and Contractor. When ground-mounted signs on this project are to be covered, they shall be covered in accordance with Section 812.03 of the MDOT 2012 Standard Specifications for Construction.
 - J. All signs, temporary or permanent, which are damaged as a result of improper sign covering, shall be replaced at the Contractor's expense.
3. Channelizing Devices and Barricades.
- A. Lighted Arrows, Type B, shall be used when closing a traffic lane or where called for on the plans.
 - B. Channelizing devices used on this project shall be plastic drums with high intensity sheeting for traffic shifts and tapers, lane closures, sidewalk closures and as directed by the Engineer. The use of cones will not be allowed on this project, except where approved by the Engineer.
 - C. The spacing of channelizing devices shall be as shown below, unless otherwise called for in the plans or as directed by the Engineer. In general, the spacing shall be as follows:
 - (1) 50 feet in tangents
 - (2) 25 feet in shifts or tapers
 - (3) 10 feet at locations where tight traffic control is required
 - D. The Contractor shall also place a plastic drum at the limits of all sidewalk removals, commercial driveway closures, and other areas as noted on the plans.

- E. Placement of Type III Barricades, Lighted, shall be placed for all road closures and as directed by the Engineer.

4. Traffic Signals.

- A. The Contractor shall notify Macomb County Department of Roads Traffic Operations at (586) 463-8671 a minimum of three (3) business days prior to any signal work.
- B. Any vehicular or pedestrian signal indications or overhead signing in conflict with traffic movements during a stage shall be covered, moved, or temporarily replaced with an appropriate indication until required. An MDOT pre-qualified signal contractor must perform all of the signal work. Macomb County maintenance crews may perform this work at their option.
- C. There is no work planned within 200' of a traffic signal.

5. Temporary Pavement Markings

- A. Temporary pavement markings shall consist of:
 - Pavt Mrkg, Type R, 4 inch, White, Temp
 - Pavt Mrkg, Type R, 4 inch, Yellow, Temp
- B. Temporary pavement markings, Type R shall be placed on pavement areas that will remain after construction and on new pavement for interim traffic control at locations specified by the Engineer.
- C. When Type R tape is used, it shall be the Contractor's responsibility to ensure that all temporary pavement markings adhere to the pavement surface as long as they are needed. Any additional adhesives or other materials used shall be included with these pay items.
- D. Remove or obliterate all conflicting pavement markings as soon as possible.
- E. All existing pavement markings outside the project limits that are removed for traffic control or obliterated during construction operations shall be permanently replaced with "Pavt Mrkg, Sprayable Thermoplastic" or "Pavt Mrkg, Ovly Cold Plastic" of the appropriate shape and color.
- F. Log all markings outside the project limits that will be removed for traffic control or obliterated during construction operations prior to removing any existing pavement markings. Return the roadways to their original configuration and mark accordingly at the completion of the project.

i. Measurement and Payment. The completed work for the various traffic control measures shall be measured as follows and paid at the Contract unit prices:

Contract Item (Pay Item)	Pay Unit
Traffic Control, Major Street	Lump Sum
Traffic Control, Minor Street	Lump Sum

1. Payment for Traffic Control, Major Street will include all work required to maintain traffic on the following streets:

Stephens Road

9 Mile Road

* Streets that require a MCDR traffic permit

** Streets that require a MDOT traffic permit

Payment for Traffic Control, Minor Street will include work on all other streets.

2. All work items listed in section 812.04 of the MDOT 2012 Standard Specifications for Construction, which are necessary to complete the work, shall be included in these items of work.
3. No payment will be made for unused quantities of traffic control devices or pavement markings.
4. If the Contractor chooses to expedite the construction, any additional signing or maintaining traffic devices required shall be at the Contractor's expense.

MINIMUM MERGING TAPER LENGTH "L" (FEET)

OFFSET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										TAPER LENGTH "L" IN FEET
FEET	25	30	35	40	45	50	55	60	65	70	
1	10	15	20	27	45	50	55	60	65	70	
2	21	30	41	53	90	100	110	120	130	140	
3	31	45	61	80	135	150	165	180	195	210	
4	42	60	82	107	180	200	220	240	260	280	
5	52	75	102	133	225	250	275	300	325	350	
6	63	90	123	160	270	300	330	360	390	420	
7	73	105	143	187	315	350	385	420	455	490	
8	83	120	163	213	360	400	440	480	520	560	
9	94	135	184	240	405	450	495	540	585	630	
10	104	150	204	267	450	500	550	600	650	700	
11	115	165	225	293	495	550	605	660	715	770	
12	125	180	245	320	540	600	660	720	780	840	
13	135	195	266	347	585	650	715	780	845	910	
14	146	210	286	374	630	700	770	840	910	980	
15	157	225	307	400	675	750	825	900	975	1050	

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" = $\frac{W \times S^2}{60}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS

"L" = S x W WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

L = MINIMUM LENGTH OF MERGING TAPER

S = POSTED SPEED LIMIT IN MPH
PRIOR TO WORK AREA

W = WIDTH OF OFFSET

TYPES OF TAPERS

UPSTREAM TAPERS

MERGING TAPER

SHIFTING TAPER

SHOULDER TAPER

TWO-WAY TRAFFIC TAPER

DOWNSTREAM TAPERS

(USE IS OPTIONAL)

TAPER LENGTH

L - MINIMUM

1/2 L - MINIMUM

1/3 L - MINIMUM

100' - MAXIMUM

100' - MINIMUM

(PER LANE)



TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON:AE:djf

JUNE 2006

CHECKED BY: BMM

PLAN DATE:

M0020a

SHEET
1 OF 2

FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn

REV. 08/21/2006

DISTANCE BETWEEN TRAFFIC CONTROL DEVICES "D"
AND LENGTH OF LONGITUDINAL BUFFER SPACE ON
"WHERE WORKERS PRESENT" SEQUENCES

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
D (FEET)	250	300	350	400	450	500	550	600	650	700

GUIDELINES FOR LENGTH OF
LONGITUDINAL BUFFER SPACE "B"

SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

* POSTED SPEED, OFF PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

1 BASED UPON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS (A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS), AASHTO. THIS AASHTO DOCUMENT ALSO RECOMMENDS ADJUSTMENTS FOR THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.



TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON:AE:djf

JUNE 2006

M0020a

SHEET
2 OF 2

CHECKED BY: BMM

PLAN DATE:

FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn

REV. 08/21/2006


NOTES

30. THE APPROPRIATE ADVANCE SIGNING SEQUENCE(S), (M0030a THROUGH M0080a) SHALL BE USED ON ALL PROJECTS.
32. THESE SIGNS SHALL BE LEFT IN PLACE AT THEIR PRESCRIBED LOCATIONS FOR THE DURATION OF THE PROJECT AND UNTIL ALL TEMPORARY TRAFFIC CONTROL HAS BEEN REMOVED.
33. THESE SIGNS ARE INTENDED TO BE USED OUTSIDE THE LIMITS OF ALL TEMPORARY SEQUENCE SIGNING AS IS SHOWN ON 1 OF 2. THESE SIGNS ARE NOT TO BE INTERMINGLED WITH ANY TEMPORARY SEQUENCE SIGNING.

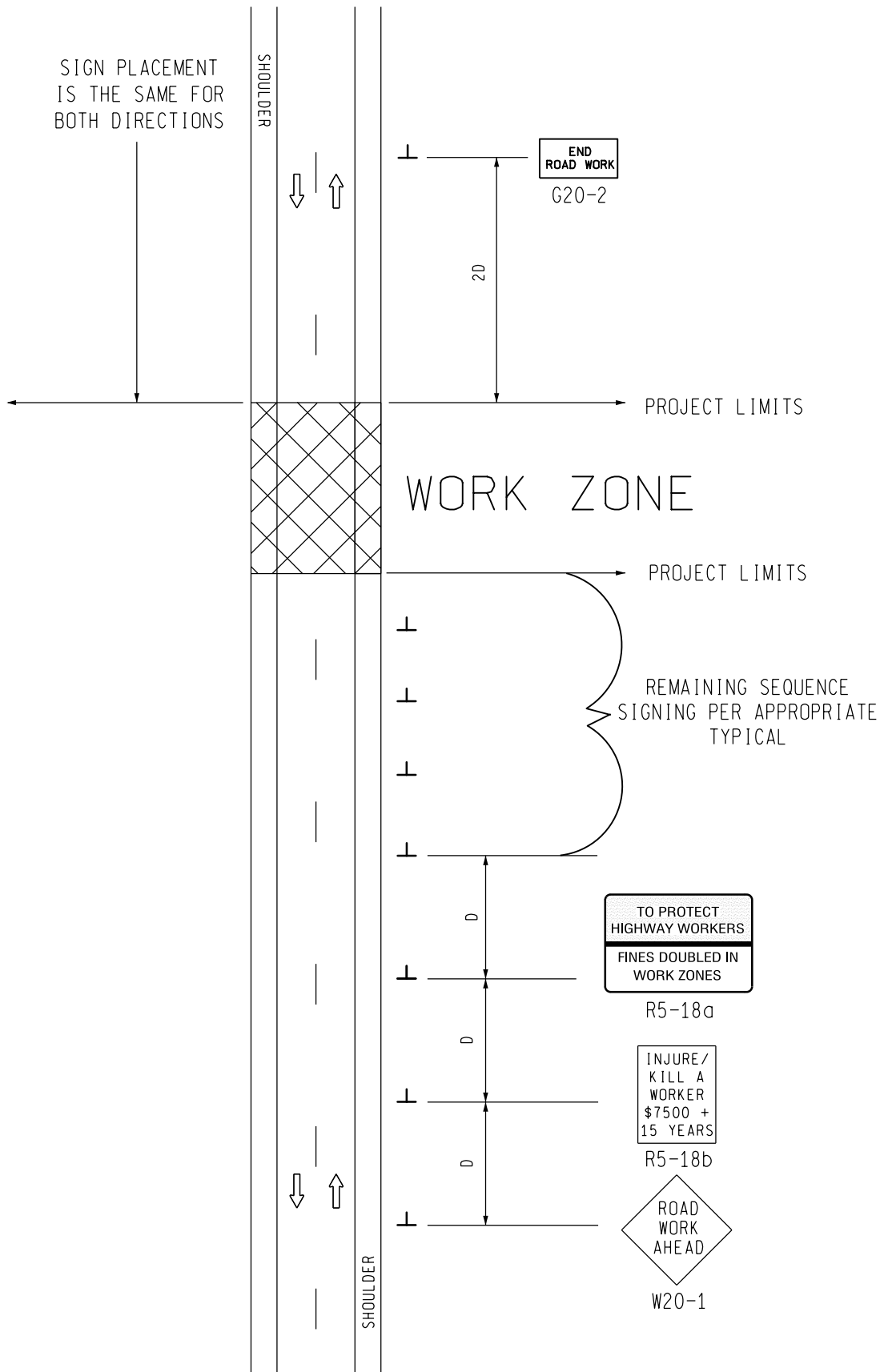
SIGN SIZES

G20-1	-	60" x 24"
G20-2	-	48" x 24"
R5-18a	-	96" x 60"
R5-18b	-	48" x 60"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL ADVANCE SIGNING TREATMENT FOR LONG, INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS OF MORE THAN TWO MILES IN LENGTH WHERE TRAFFIC CONTROL DEVICES MAY REMAIN AT END OF WORK DAY ON AN UNDIVIDED TWO-WAY ROADWAY	
DRAWN BY: CON:AE:djf		OCTOBER 2011	M0030a
CHECKED BY: BMM:CRB		PLAN DATE:	
FILE: K:\-DGN-TSR-STD5-ENGLISH-MNTTRF-M0030a.dgn		REV.	SHEET 2 OF 2
		10/13/2011	

SIGN PLACEMENT
IS THE SAME FOR
BOTH DIRECTIONS



SIGN = 68 f+2 - TYPE B
FOR ONE DIRECTION OF TRAFFIC
W20-1 QUANTITY INCLUDED
WITH APPROPRIATE TYPICAL
FOR SEQUENCE SIGNING

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: CON:AE:djf
CHECKED BY: BMM:CRB

TYPICAL ADVANCE SIGNING TREATMENT FOR LONG,
INTERMEDIATE AND SHORT TERM STATIONARY
WORK ZONE OPERATIONS OF LESS THAN TWO
MILES IN LENGTH WHERE TRAFFIC CONTROL
DEVICES MAY REMAIN AT END OF WORK DAY
ON AN UNDIVIDED TWO-WAY ROADWAY

OCTOBER 2011
PLAN DATE:

M0040a

SHEET
1 OF 2

NOT TO SCALE

FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0040a.dgn REV. 10/13/2011


NOTES

30. THE APPROPRIATE ADVANCE SIGNING SEQUENCE(S), (M0030a THROUGH M0080a) SHALL BE USED ON ALL PROJECTS.
32. THESE SIGNS SHALL BE LEFT IN PLACE AT THEIR PRESCRIBED LOCATIONS FOR THE DURATION OF THE PROJECT AND UNTIL ALL TEMPORARY TRAFFIC CONTROL HAS BEEN REMOVED.
35. THESE SIGNS ARE INTENDED TO BE USED WITHIN THE LIMITS OF THE TEMPORARY SEQUENCE SIGNING AS IS SHOWN ON 1 OF 2. THESE SIGNS ARE NOT TO BE INTERMINGLED WITH ANY OTHER TEMPORARY SEQUENCE SIGNING EXCEPT AS SHOWN.

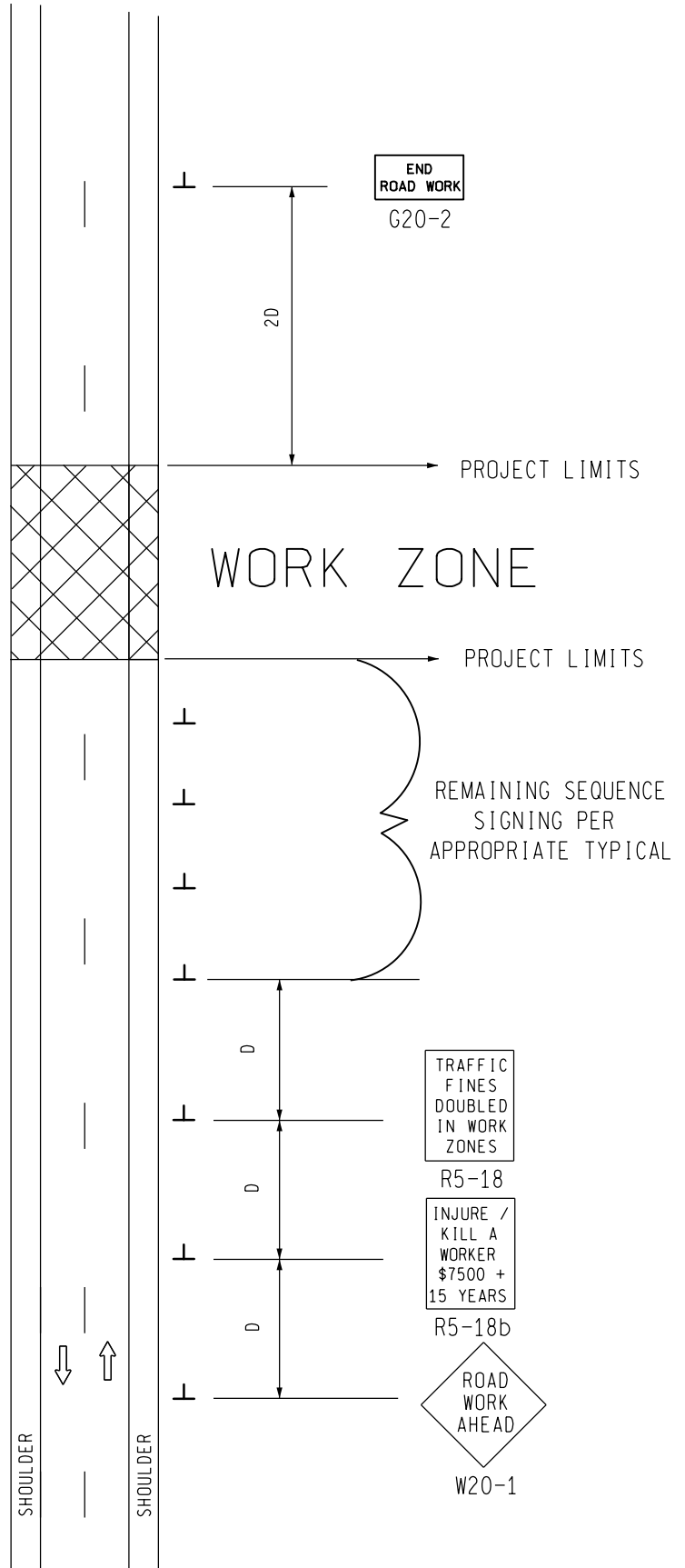
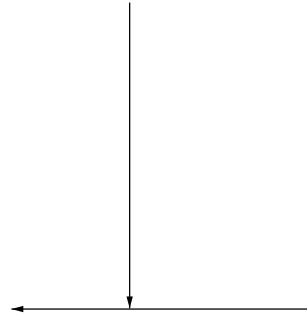
SIGN SIZES

G20-2	-	48" x 24"
R5-18a	-	96" x 60"
R5-18b	-	48" x 60"
W20-1	-	48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL ADVANCE SIGNING TREATMENT FOR LONG, INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS OF LESS THAN TWO MILES IN LENGTH WHERE TRAFFIC CONTROL DEVICES MAY REMAIN AT END OF WORK DAY ON AN UNDIVIDED TWO-WAY ROADWAY	
DRAWN BY: CON:AE:djf		OCTOBER 2011	M0040a
CHECKED BY: BMM:CRB		PLAN DATE:	
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0040a.dgn		REV.	SHEET 2 OF 2
		10/13/2011	

SIGN PLACEMENT
IS THE SAME FOR
BOTH DIRECTIONS



SIGN = 48 f+2 - TYPE B
FOR ONE DIRECTION OF TRAFFIC
W20-1 QUANTITY INCLUDED WITH
APPROPRIATE TYPICAL FOR
SEQUENCE SIGNING

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: CON:AE:djf
CHECKED BY: BMM:CRB

TYPICAL ADVANCE SIGNING TREATMENT FOR
INTERMEDIATE AND SHORT TERM
STATIONARY WORK ZONE OPERATIONS WHERE
ALL TRAFFIC CONTROL DEVICES ARE
REMOVED AT END OF EACH WORK DAY ON
AN UNDIVIDED TWO-WAY ROADWAY

OCTOBER 2011
PLAN DATE:

M0050a

SHEET
1 OF 2

NOT TO SCALE

FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0050a.dgn REV. 10/13/2011


NOTES

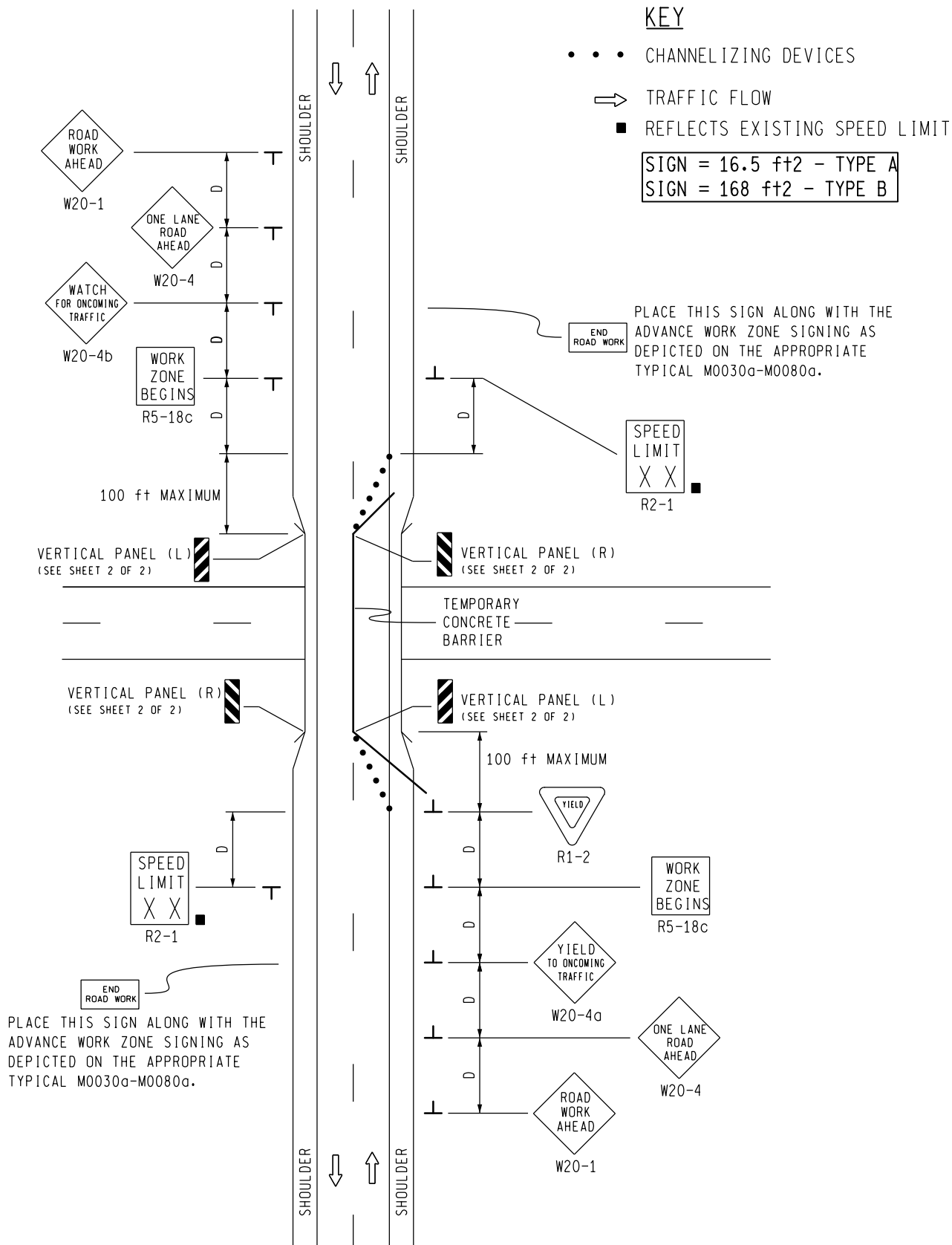
30. THE APPROPRIATE ADVANCE SIGNING SEQUENCE(S), (M0030a THROUGH M0080a) SHALL BE USED ON ALL PROJECTS.
35. THESE SIGNS ARE INTENDED TO BE USED WITHIN THE LIMITS OF THE TEMPORARY SEQUENCE SIGNING AS IS SHOWN ON 1 OF 2. THESE SIGNS ARE NOT TO BE INTERMINGLED WITH ANY OTHER TEMPORARY SEQUENCE SIGNING EXCEPT AS SHOWN.

SIGN SIZES

G20-2	-	48" x 24"
R5-18	-	48" x 60"
R5-18b	-	48" x 60"
W20-1	-	48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL ADVANCE SIGNING TREATMENT FOR INTERMEDIATE AND SHORT TERM STATIONARY WORK ZONE OPERATIONS WHERE ALL TRAFFIC CONTROL DEVICES ARE REMOVED AT END OF EACH WORK DAY ON AN UNDIVIDED TWO-WAY ROADWAY	
DRAWN BY: CON:AE:djf		OCTOBER 2011	SHEET
CHECKED BY: BMM:CRB		PLAN DATE:	2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0050a.dgn REV. 10/13/2011			



NOT TO SCALE

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: CON:AE:djf

CHECKED BY: BMM:CRB

FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0220a.dgn REV. 10/11/2011

TYPICAL TEMPORARY TRAFFIC CONTROL FOR
A TWO-LANE TWO-WAY ROADWAY WHERE
ONE LANE IS CLOSED UTILIZING A YIELD
TO ONCOMING TRAFFIC SEQUENCE
NO SPEED REDUCTION

OCTOBER 2011

PLAN DATE:

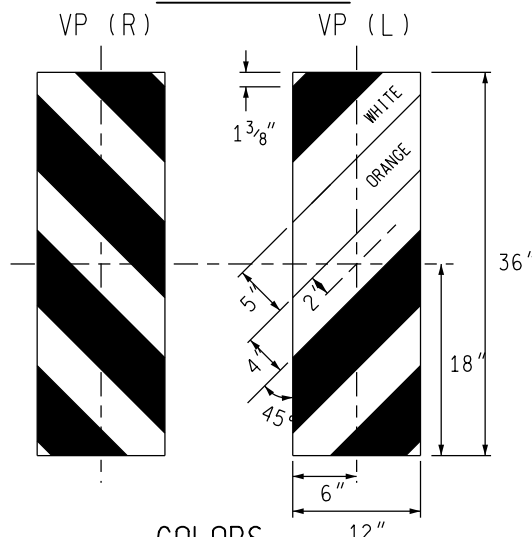
M0220a

SHEET
1 OF 2

NOTES

- 1A. SEE M0020a FOR "D" VALUES.
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4C. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES IN THE TAPER AREA(S) SHOULD BE 15 FEET.
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.
22. BARRIER REFLECTORS AND RAISED PAVEMENT MARKERS WHICH ARE EITHER BI-DIRECTIONAL TWO COLOR OR SINGLE REFLECTORS PLACED BACK TO BACK, WHICH REFLECT THE APPROPRIATE COLOR FOR THE TRAFFIC PATTERN, SHOULD BE USED TO DELINEATE EACH EDGE OF THE TRAVELED PATH THROUGH THE WORK AREA.
23. TEMPORARY CONCRETE BARRIER SHALL BE APPLIED AS PER THE CURRENT STANDARD PLAN.
25. THIS SEQUENCE SHOULD ONLY BE USED WHEN TRAFFIC VOLUMES ARE LOW, SIGHT DISTANCE IS GOOD, AND THE CLOSED LANE IS RELATIVELY SHORT IN LENGTH.

SIGN DETAIL



COLORS

STRIPES - ORANGE (REFLECTORIZED)
AND WHITE (REFLECTORIZED)

SIGN SIZES

DIAMOND WARNING	- 48" x 48"
R1-2 REGULATORY	- 48" x 48" x 48"
R2-1 REGULATORY	- 48" x 60"
R5-18c REGULATORY	- 48" x 48"
VERTICAL PANEL	- 12" x 36"

NOT TO SCALE



DRAWN BY: CON:AE:djf
CHECKED BY: BMM:CRB

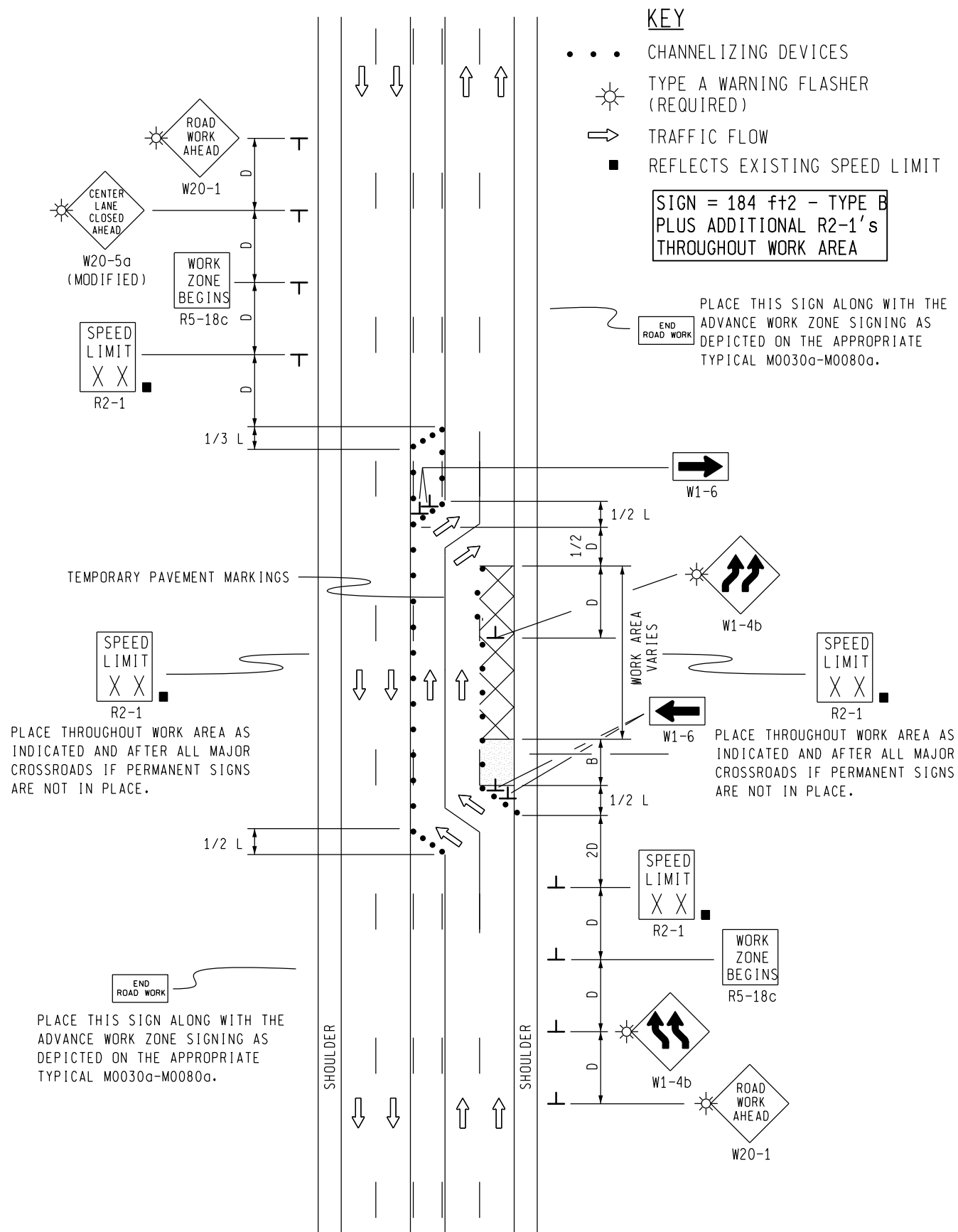
TYPICAL TEMPORARY TRAFFIC CONTROL FOR
A TWO-LANE TWO-WAY ROADWAY WHERE
ONE LANE IS CLOSED UTILIZING A YIELD
TO ONCOMING TRAFFIC SEQUENCE
NO SPEED REDUCTION

FILE: PW RD/TS/Typicals/Signs/MT NON Fwy/M0220a.dgn REV. 10/11/2011

OCTOBER 2011
PLAN DATE:

M0220a

SHEET
2 OF 2




NOTES

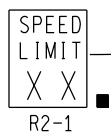
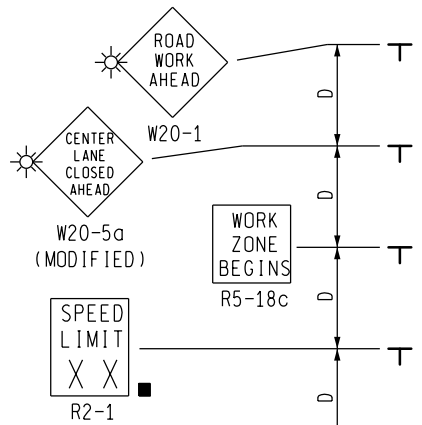
- 1F. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
 $1/2 L$, AND $1/3 L$ = MINIMUM LENGTH OF TAPER
 B = LENGTH OF LONGITUDINAL BUFFER
 SEE **M0020a** FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. THE TYPE A WARNING FLASHER SHOWN ON THE WARNING SIGNS SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 W1-6 WARNING - 48" x 24"
 R2-1 REGULATORY - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING ONE LANE OF A FIVE-LANE UNDIVIDED ROADWAY AND MAINTAINING TWO THROUGH LANES IN EACH DIRECTION, NO SPEED REDUCTION		
DRAWN BY: CON:AE:djf		OCTOBER 2011		SHEET 2 OF 2
CHECKED BY: BMM:CRB		PLAN DATE:		
FILE: K:\-DGN-TSR-STD5-ENGLISH-MNTTRF-M0400a.dgn		REV. 10/19/2011		



PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

1/2 L



PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

KEY

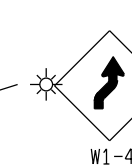
- ... CHANNELIZING DEVICES
- ← LIGHTED ARROW PANEL
- ☀ TYPE A WARNING FLASHER (REQUIRED)
- TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT

SIGN = 216 ft±2 - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA

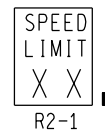
NOT TO SCALE



PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.



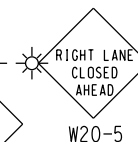
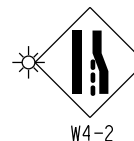
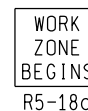
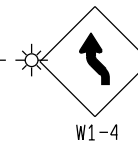
WORK AREA VARIES



PLACE THROUGHOUT WORK AREA AS INDICATED AND AFTER ALL MAJOR CROSSROADS IF PERMANENT SIGNS ARE NOT IN PLACE.

1/2 L

2L



MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: CON:AE:djf

CHECKED BY: BMM:CRB

FILE: K:\DGN-TSR-STD5-ENGLISH-MNTTRF-M0430a.dgn

TYPICAL TEMPORARY TRAFFIC CONTROL
FOR CLOSING TWO ADJACENT THROUGH
LANES OF A FIVE-LANE UNDIVIDED
ROADWAY, NO SPEED REDUCTION

OCTOBER 2011

PLAN DATE:

M0430a

SHEET

1 OF 2

REV. 10/20/2011


NOTES

- 1E. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
L, 1/2 L, AND 1/3 L = MINIMUM LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER
SEE **M0020a** FOR "D," "L," AND "B" VALUES
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. THE TYPE A WARNING FLASHER SHOWN ON THE WARNING SIGNS SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.
21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.
26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
W1-6 WARNING - 48" x 24"
R2-1 REGULATORY - 48" x 60"
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

 MDOT Michigan Department of Transportation TRAFFIC AND SAFETY MAINTAINING TRAFFIC TYPICAL		TYPICAL TEMPORARY TRAFFIC CONTROL FOR CLOSING TWO ADJACENT THROUGH LANES OF A FIVE-LANE UNDIVIDED ROADWAY, NO SPEED REDUCTION	
DRAWN BY: CON:AE:djf	OCTOBER 2011	M0430a	SHEET 2 OF 2
CHECKED BY: BMM:CRB	PLAN DATE:		
FILE: K:\-DGN-TSR-STD5-ENGLISH-MNTTRF-M0430a.dgn		REV.	10/20/2011

SIGN MATERIAL SELECTION TABLE

SIGN SIZE	SIGN MATERIAL TYPE		
	TYPE I	TYPE II	TYPE III
$\leq 36" \times 36"$		X	X
$> 36" \times 36" \leq 96" \text{ TO WIDE}$		X	
$> 96" \text{ WIDE TO } 144" \text{ WIDE}$	X	X	
$> 144" \text{ WIDE}$	X		


TYPE I ALUMINUM EXTRUSION
 TYPE II PLYWOOD
 TYPE III ALUMINUM SHEET

ROUNDING OF CORNERS IS NOT REQUIRED FOR TYPE I OR II SIGNS.
 VERTICAL JOINTS ARE NOT PERMITTED.
 HORIZONTAL JOINTS THROUGH SIGN LEGEND OR SYMBOLS ARE NOT PERMITTED.

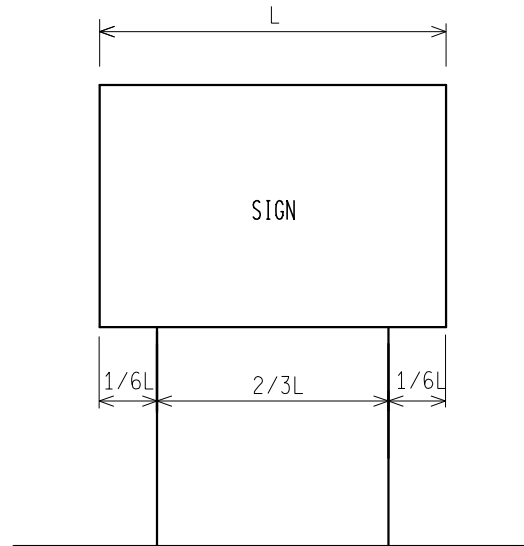
POST SIZE REQUIREMENTS TABLE

SIGN AREA (ft^2)	POST TYPE		
	U-CHANNEL STEEL	SQUARE TUBULAR STEEL	WOOD
≤ 9	1 - 3 lb/ft*	1 - 2" 12 or 14 GA*	N/A
$9 \leq 20$	2 - 3 lb/ft	2 - 2" 12 or 14 GA	1 - 4" X 6"*
$> 20 \leq 30$	N/A	N/A	2 - 4" X 6"
$> 30 \leq 60$	N/A	N/A	2 - 6" X 8"
$> 60 \leq 84$	N/A	N/A	3 - 6" X 8"

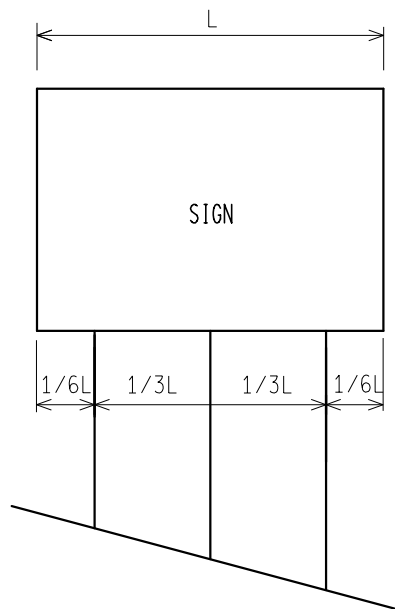
*SIGNS 4 FEET AND GREATER IN WIDTH REQUIRE 2 POSTS.
 SIGNS GREATER THAN 8 FEET IN WIDTH REQUIRE 2 OR 3 WOOD
 POSTS DEPENDING ON AREA OF SIGN.
 A MAXIMUM OF 2 POSTS WITHIN A 7' PATH IS PERMITTED.

 PREPARED BY DESIGN DIVISION	DEPARTMENT DIRECTOR Kirk T. Steudle	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR <h3 style="margin: 0;">GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS</h3>		
	APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES			
	APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT	_____ F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A SHEET 1 OF 11

2 POST SIGN SUPPORT SPACING



3 POST SIGN SUPPORT SPACING



* FOR ALL 11' AND 12' LONG SIGNS ON 3 WOOD SUPPORTS, SPREAD POSTS SO AS TO HAVE A 8' MIN. TO 9' MAX. DISTANCE BETWEEN OUTSIDE POSTS.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

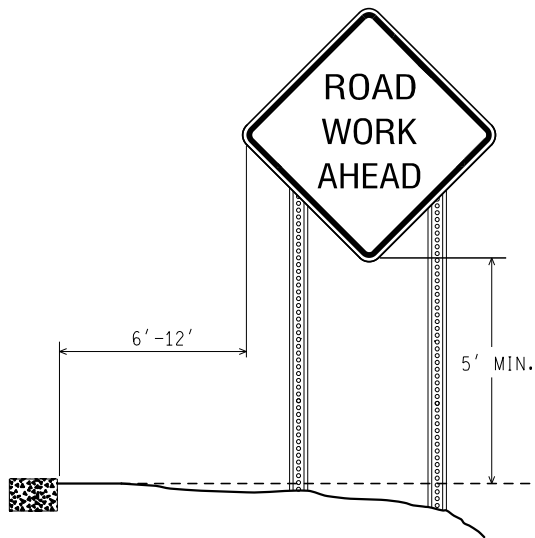
F.H.W.A. APPROVAL

11/2/2017
PLAN DATE

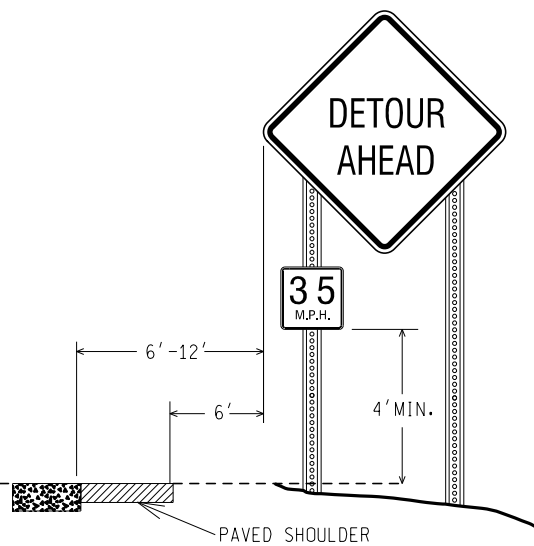
WZD-100-A

SHEET
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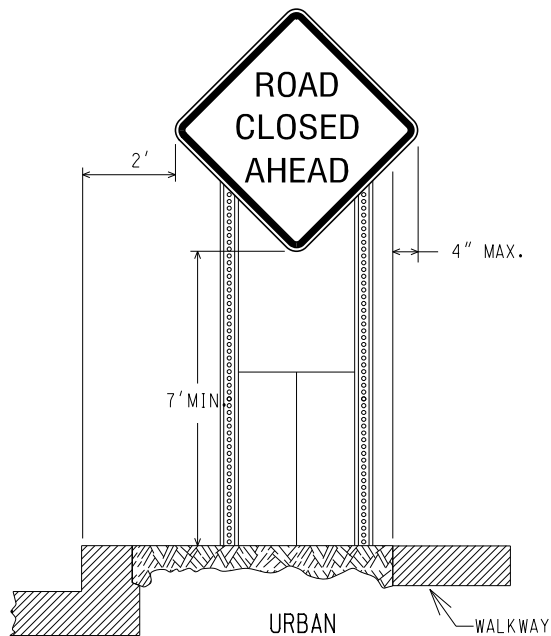
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RURAL

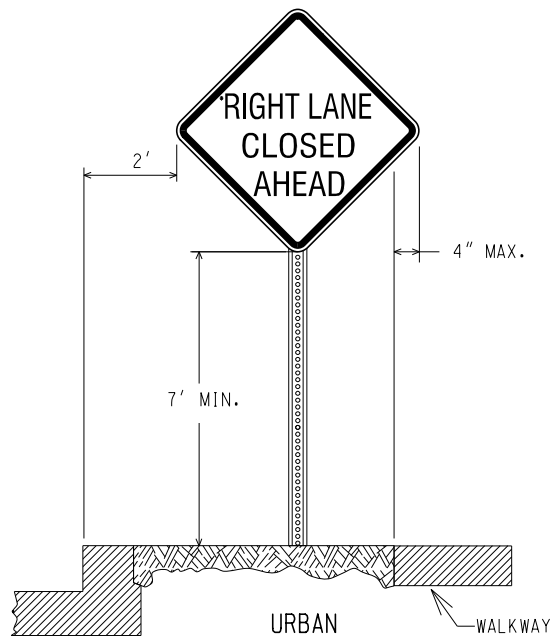


RURAL WITH ADVISORY
SPEED PLATE



URBAN

(CURBED AREAS OR WHERE
WALKWAYS ARE PRESENT)



URBAN

(CURBED AREAS OR WHERE
WALKWAYS ARE PRESENT)

BOTTOM HEIGHT AND OFFSET

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

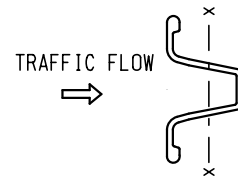
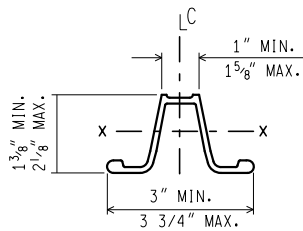
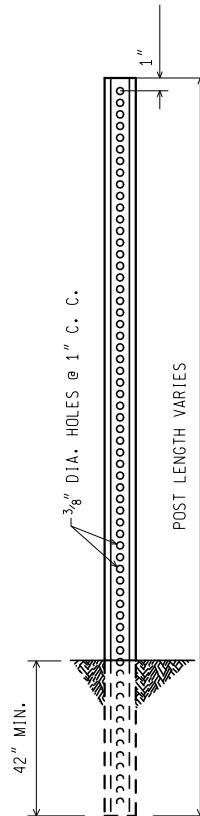
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11/2/2017
PLAN DATE

WZD-100-A

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WEIGHT = 3 lbs/ft
 SECT. MOD. X.-X. = 0.31 CUBIC INCHES MIN.

3 lb. U - CHANNEL STEEL POST (NO SPLICE)

MOUNT SIGN ON OPEN FACE OF
 U - CHANNEL STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF DEVELOPMENT STANDARD PLAN

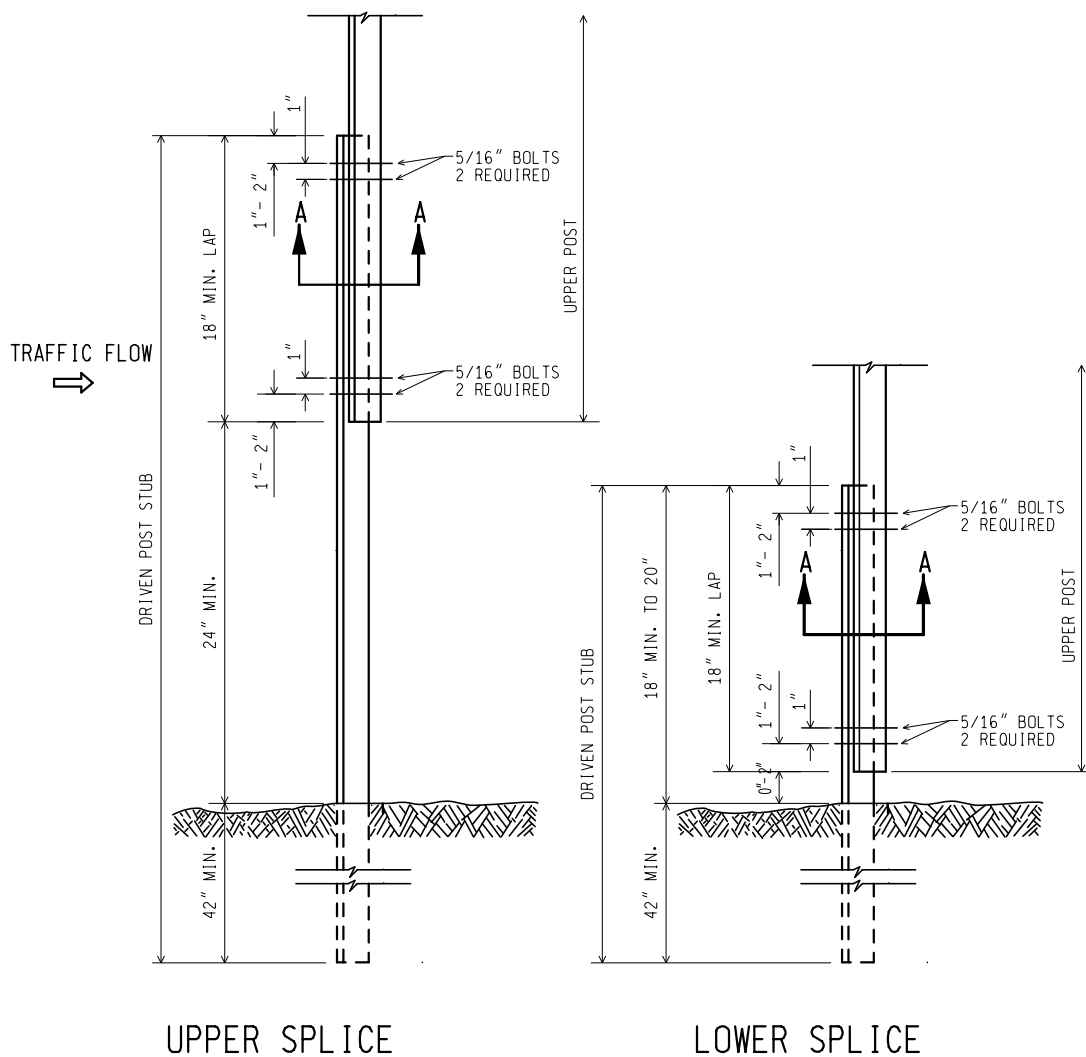
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11/2/2017
 PLAN DATE

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3 lb. U - CHANNEL STEEL POST (WITH SPLICE)

MOUNT SIGN ON OPEN FACE OF
UPPER U - CHANNEL STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

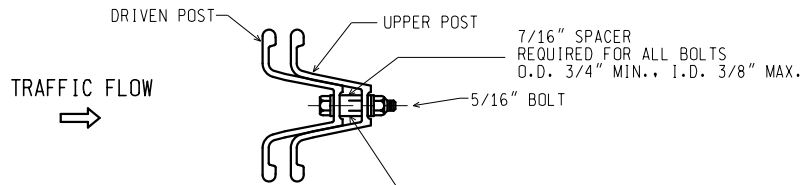
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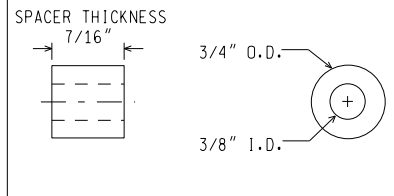
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SECTION A-A

SPACER DETAIL



NOTES:

1. THE SPACER THICKNESS SHALL BE 1/16" LESS THAN THE GAP BETWEEN THE POST WHEN POSITIONED IN THE UNBOLTED CONFIGURATION.
2. THE EXTERIOR BOLT (CLOSEST TO LAP), SPACER, WASHER, AND NUT SHALL BE INSTALLED IN A PREPUNCHED HOLE 1" TO 2" FROM THE END OF THE LAP.
3. THE INTERIOR BOLT (FARTHEST FROM LAP), SPACER, WASHER, AND NUT SHALL BE INSTALLED IN THE NEXT PREPUNCHED HOLE.
4. THE DRIVEN POST SHALL ALWAYS BE MOUNTED IN FRONT OF THE UPPER POST WITH RESPECT TO THE ADJACENT ONCOMING TRAFFIC, REGARDLESS OF THE DIRECTION THE SIGN IS FACING.
5. THE SPLICE LAP SHALL BE FASTENED BY FOUR-5/16" DIA. GALVANIZED A449 BOLTS (SAE J429 GRADE 5) OR GALVANIZED A325 BOLTS.

3 lb. U - CHANNEL STEEL POST
(WITH SPLICE)

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

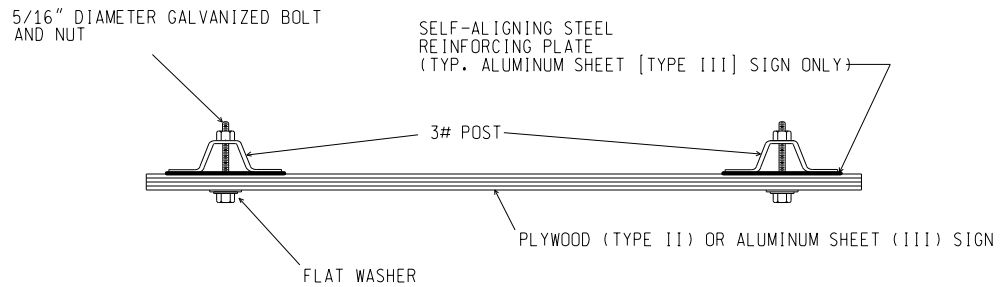
F.H.W.A. APPROVAL

11/2/2017
PLAN DATE

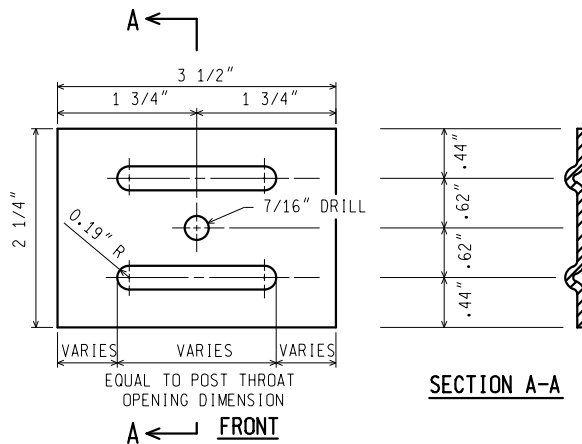
WZD-100-A

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SIGN TO 3 lb. POST CONNECTION



NOTES: (FOR STEEL SIGN REINF' PLATE)

1. MATERIAL: 12 GAUGE CARBON STEEL.
2. TOLERANCE ON ALL DIMENSIONS ± 0.0625 "
3. FINISH-AFTER STAMPING AND PUNCHING, GALVANIZE ACCORDING TO CURRENT SPECIFICATIONS FOR ZINC (HOT GALVANIZE) COATINGS ON PRODUCTS FABRICATED FROM PLATES OR STRIPS

SECTION A-A

STEEL SIGN REINFORCING PLATE REQUIRED FOR TYPE III SIGNS ONLY

3 lb. U - CHANNEL STEEL POST SIGN CONNECTION

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

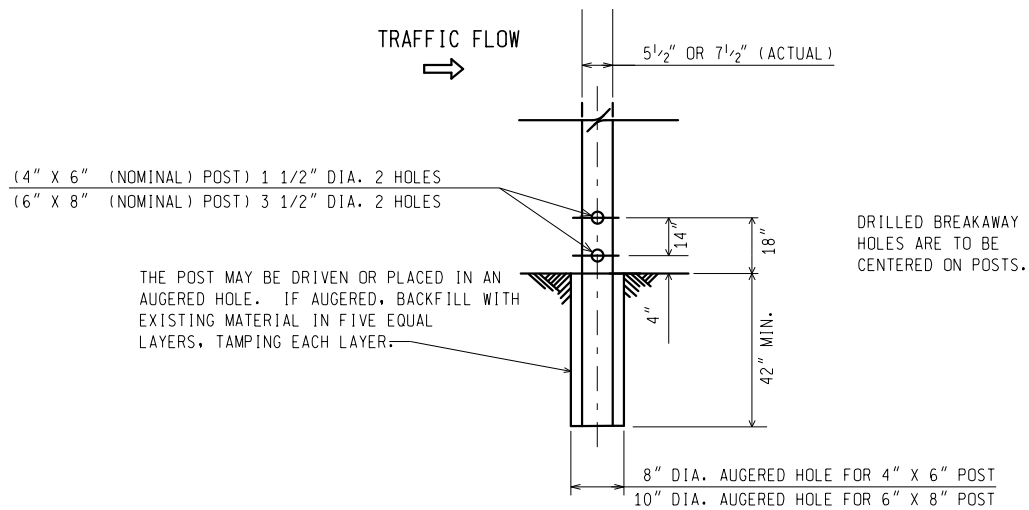
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PLAN DATE

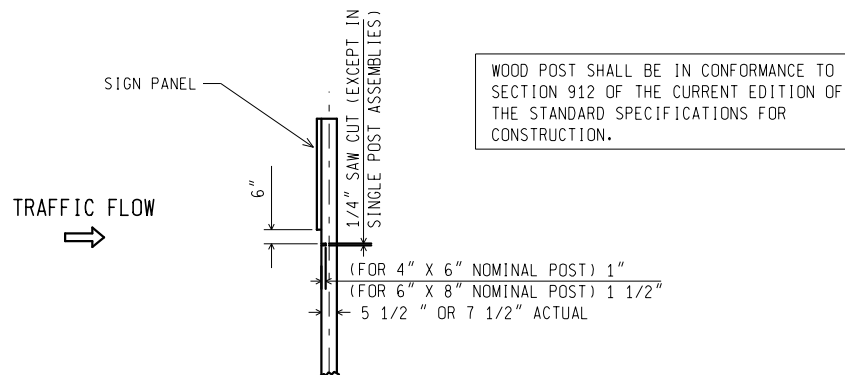
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WOOD POST BREAKAWAY HOLES/ DIRECT EMBEDMENT DETAILS



SAW CUT DETAIL (MULTIPLE POST INSTALLATIONS)

WOOD POST DETAILS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

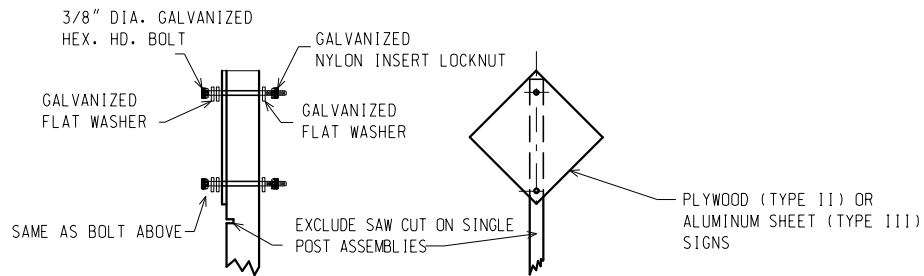
F.H.W.A. APPROVAL

11/2/2017
PLAN DATE

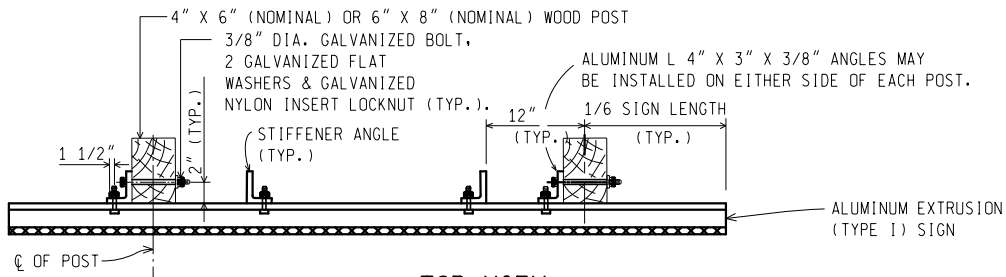
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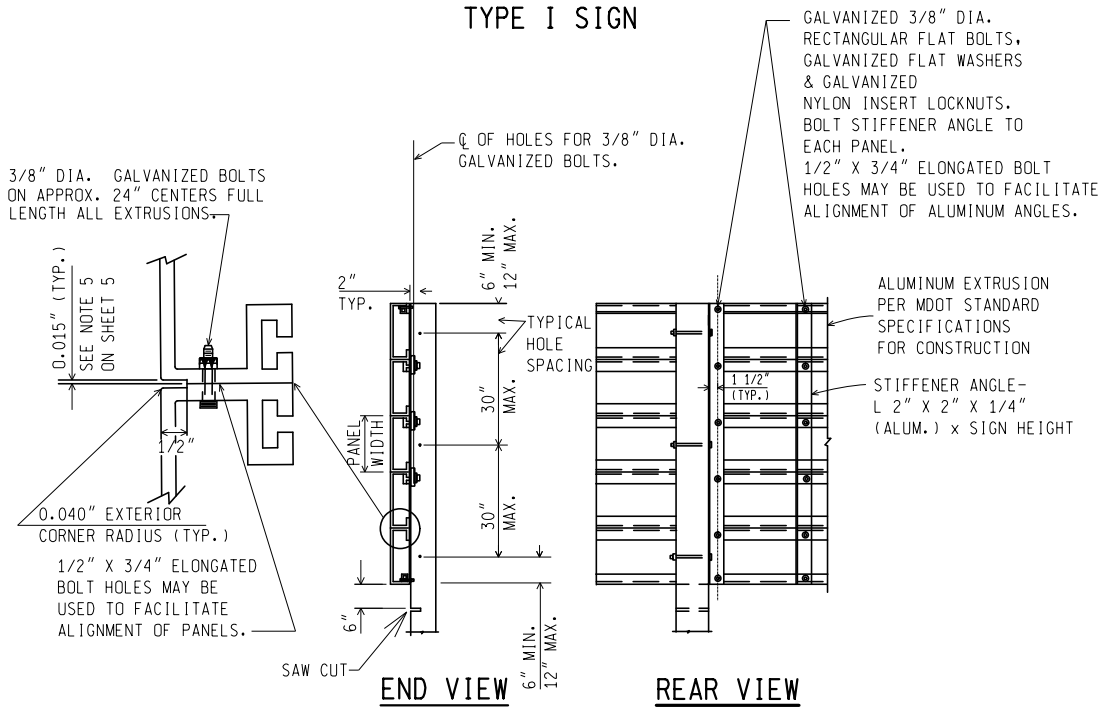
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TYPE II AND TYPE III SIGNS



TOP VIEW TYPE I SIGN



TYPE I SIGN - ERECTION DETAILS

WOOD POST CONNECTIONS

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

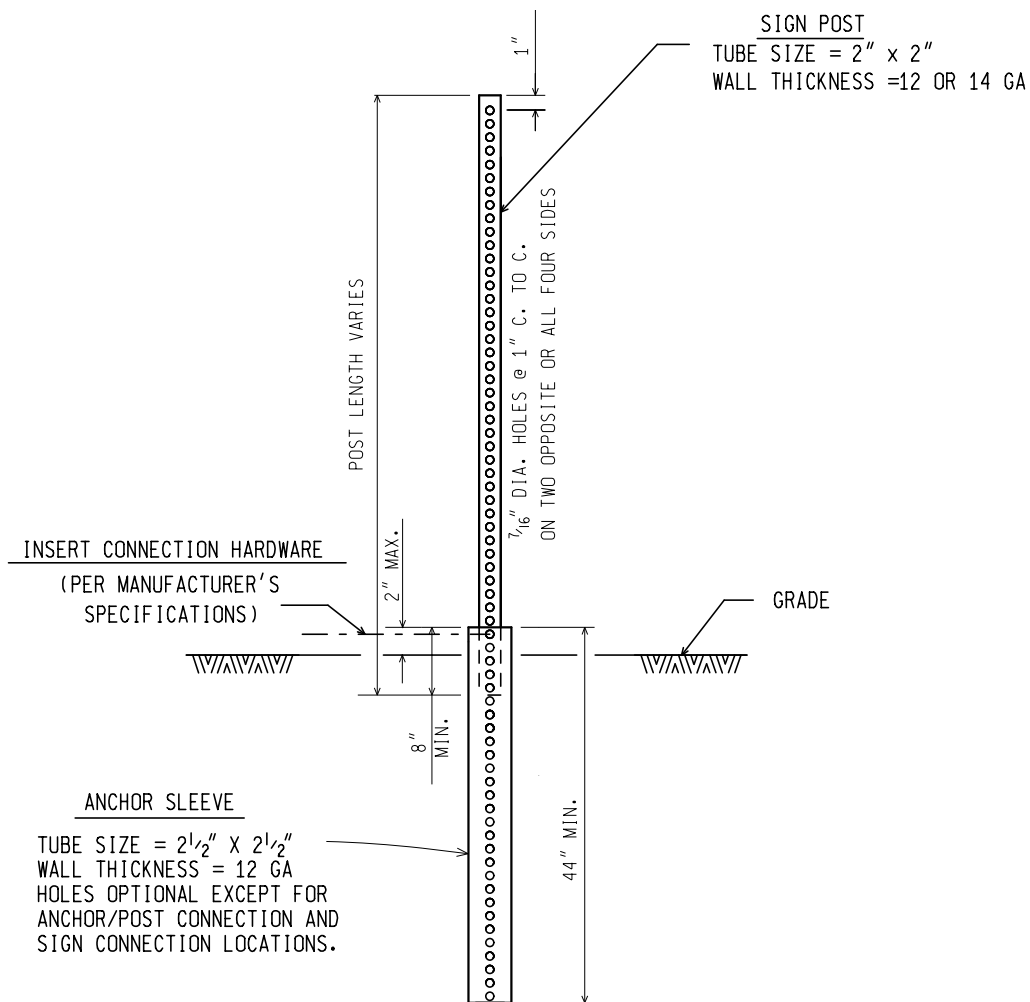
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SQUARE TUBULAR STEEL POST

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF DEVELOPMENT STANDARD PLAN

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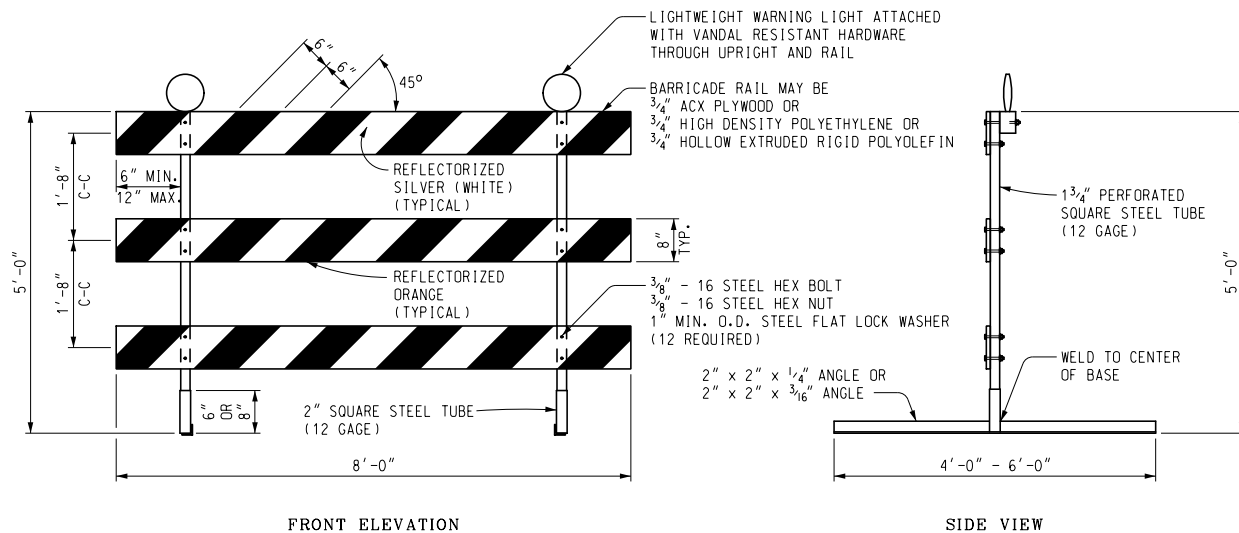
GENERAL NOTES:

1. A MAXIMUM OF TWO POSTS WITHIN A 7 FOOT PATH IS PERMITTED.
2. ALL SIGN POSTS SHALL COMPLY WITH NCHRP 350.
3. ALL POSTS SHALL BE EMBEDDED A MINIMUM OF 42".
4. BRACING OF POST IS NOT PERMITTED.
5. SIGN SHALL BE LEVEL, AND UPRIGHT FOR THE DURATION OF INSTALLATION.
6. ERECT POSTS SO THE SIGN FACE AND SUPPORTS DO NOT VARY FROM PLUMB BY MORE THAN 3/16" IN 3'. PROVIDE A CENTER-TO-CENTER DISTANCE BETWEEN POSTS WITHIN 2 PERCENT OF PLAN DISTANCE.
7. NO MORE THAN ONE SPLICE PER POST, AS SHOWN, WILL BE PERMITTED.
8. POST TYPES SHALL NOT BE MIXED WITHIN A SIGN SUPPORT INSTALLATION.
9. NO VERTICAL JOINTS ARE PERMITTED IN SIGN. NO HORIZONTAL JOINTS THROUGH SIGN LEGEND OR SYMBOLS ARE PERMITTED IN SIGN
10. REMOVE SIGN POSTS AND/OR POST STUBS IN THEIR ENTIRETY WHEN NO LONGER REQUIRED.
11. ALL LABOR, MATERIALS, AND EQUIPMENT, INCLUDING TEMPORARY SUPPORTS REQUIRED TO INSTALL, MAINTAIN, RELOCATE, AND/OR REMOVE THE TEMPORARY SIGN, INCLUDING SUPPORTS, ARE CONSIDERED TO BE INCLUDED IN THE COST OF THE TEMPORARY SIGN.
12. SAW CUTS IN WOOD POSTS ARE TO BE PARALLEL TO THE BOTTOM OF THE SIGN.
13. POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE TOP OF SIGN.
14. TEMPORARY WOOD SUPPORTS DO NOT REQUIRE PRESERVATIVE TREATMENT.

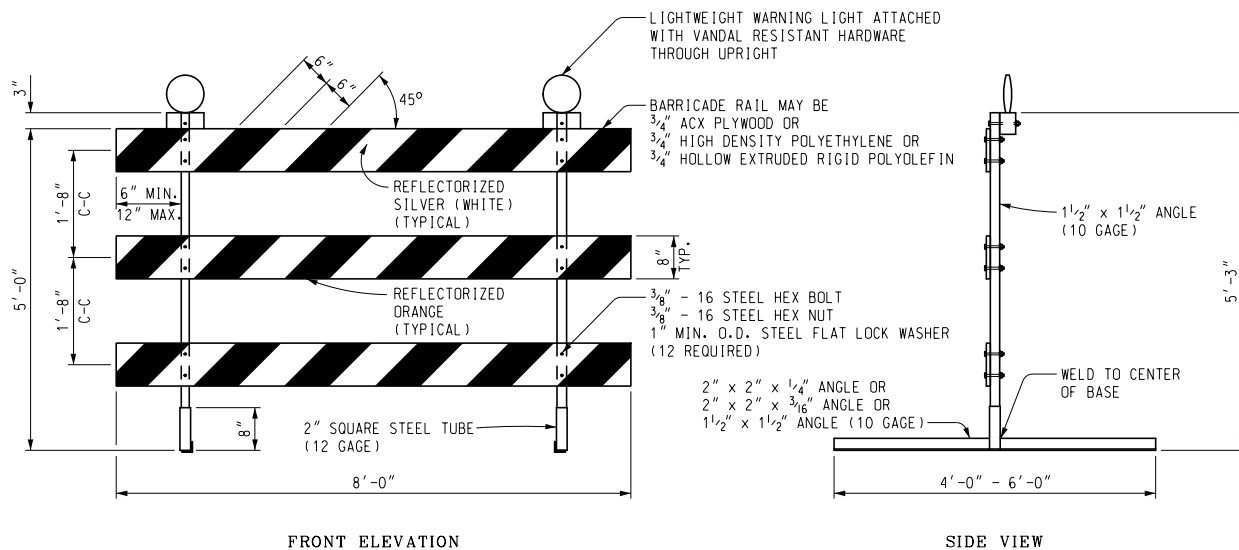
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	F.H.W.A. APPROVAL	11/2/2017 PLAN DATE	WZD-100-A	SHEET 11 OF 11
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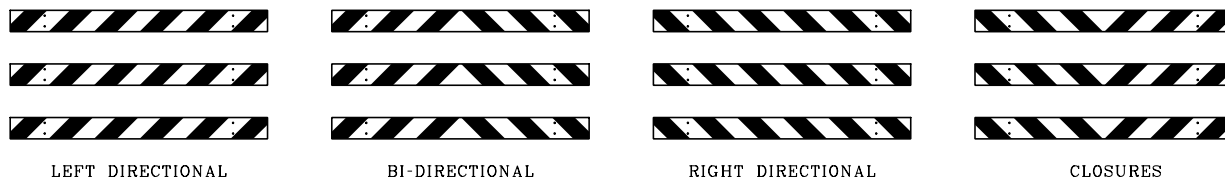
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PERFORATED SQUARE STEEL TUBE OPTION



ANGLE IRON OPTION



BARRICADE RAIL SHEETING OPTIONS
TYPE III BARRICADES

Other Type III Barricades meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at
http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm



PREPARED
BY
DESIGN DIVISION

DRAWN BY: ECH

CHECKED BY: MWB

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES
ENGINEER OF DEVELOPMENT

APPROVED BY: _____
(SPECIAL DETAIL)
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

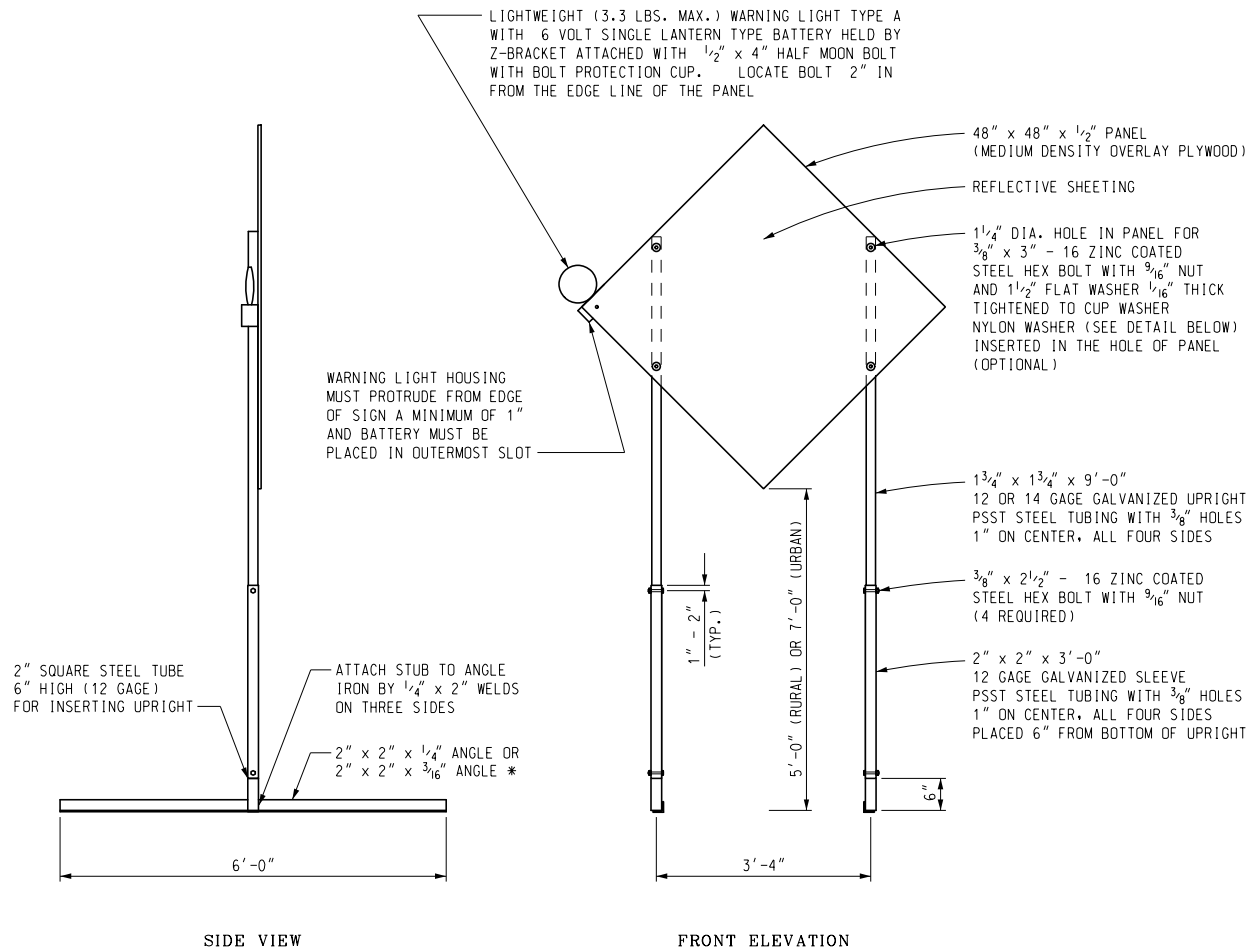
Temporary
Traffic Control Devices

F.H.W.A. APPROVAL

1/18/11
PLAN DATE

WZD-125-E

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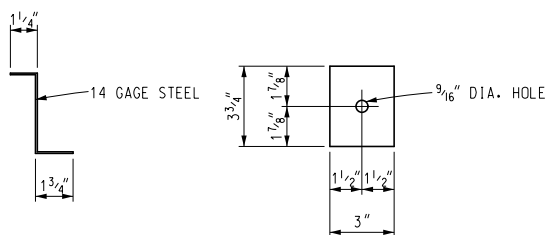


TEMPORARY SIGN SUPPORT

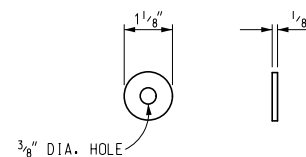
(WARNING LIGHT PLACED ON SIDE CLOSEST TO TRAFFIC)

* SIGN STAND IS BALLASTED WITH FOUR OR MORE 35 LB SANDBAGS. A MINIMUM OF ONE ON EACH END.

UPRIGHTS SHALL NOT EXTEND ABOVE THE SIGN PANEL.



Z-BRACKET DETAIL



OPTIONAL NYLON WASHER

Other temporary sign supports meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at
http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

SPECIAL DETAIL
F.H.W.A. APPROVAL

1/18/11
PLAN DATE

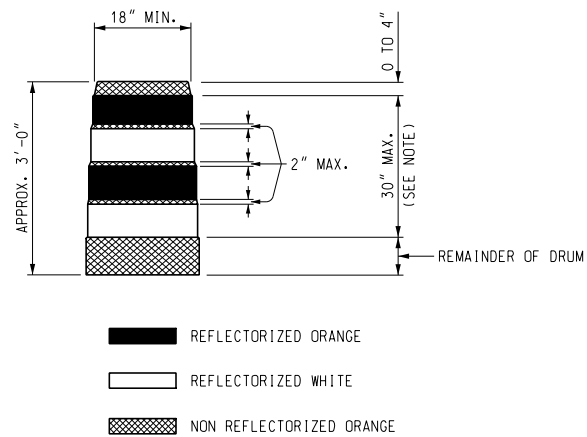
WZD-125-E

SHEET
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- PLASTIC DRUM
- ▲ PROPOSED TYPE III BARRICADE
- △ EXISTING TYPE III BARRICADE

SYMBOLS TO BE USED ON PLANS



NOTE:
DRUMS SHALL HAVE AT LEAST 4 HORIZONTAL REFLECTORIZED STRIPES (2 ORANGE AND 2 WHITE) OF 6" UNIFORM WIDTH, ALTERNATING IN COLOR WITH THE TOPMOST REFLECTORIZED STRIPE BEING ORANGE. NON REFLECTORIZED SPACES BETWEEN THE HORIZONTAL REFLECTORIZED ORANGE AND WHITE STRIPES SHALL BE ORANGE IN COLOR AND EQUAL IN WIDTH.

PLASTIC DRUM

- NOTES:
- 2" PERFORATED SQUARE STEEL TUBES MAY BE USED TO FABRICATE THE HORIZONTAL BASE OF THE TYPE III BARRICADE.
- WARNING LIGHTS SHALL BE PLACED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND ALL OTHER PROVISIONS IN THE CONTRACT ON TYPE III BARRICADES.
- SEE ROAD STANDARD PLANS R-113-SERIES FOR TEMPORARY CROSSOVERS FOR DIVIDED ROADWAY, AND R-126-SERIES FOR TYPICAL LOCATION AND SPACING OF PLASTIC DRUMS FOR PLACEMENT OF TEMPORARY CONCRETE BARRIER.
- SIGNS, BARRICADES, AND PLASTIC DRUMS SHALL BE FACED WITH PRESSURE-SENSITIVE REFLECTIVE SHEETING ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- SANDBAGS SHALL BE USED WHEN SUPPLEMENTAL WEIGHTS ARE REQUIRED TO ACHIEVE STABILITY OF THE BARRICADE. THE SANDBAGS SHALL BE PLACED SO THEY WILL NOT COVER OR OBSTRUCT ANY REFLECTIVE PORTION OF THE TRAFFIC CONTROL DEVICE.

NOT TO SCALE



CITY of EASTPONTE

MACOMB COUNTY, MICHIGAN

2022 SANITARY SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING


AEW JOB NUMBER 0145-0653

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 ANDERSON, ECKSTEIN & WESTRICK, INC. CIVIL ENGINEERS SURVEYORS ARCHITECTS 51301 SCHOENBERG RD. SHELBY TOWNSHIP, MI 48315 www.aewinc.com pl586726-1234	PLOT DATE: 12/20/2021		DRAWING DATE: 12/20/2021	
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PLOT CONFIG: 24 x 36		PROJECT NO: 0145-0653		
DEScript FILE: NONE		FILE NAME: Index.mxd		
ATTACH XREF:		DRAWN BY: AWD		CHECK BY: FDV



City of Eastpointe

2022 Sanitary Sewer Rehabilitation by Full Length C.I.P.P. Lining

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CITY OF EASTPOINTE
2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING
AEW NO. 0145-0653
FCIPP WORK SCHEDULE

MAP NO.	PIPE ID	MANHOLE	TO	MANHOLE	LENGTH (FT)	SIZE (IN)	PIPE MATERIAL	DEPTH OF MH (FT)	NO. OF LATS	COMMENTS
1	Easement North of 10 Mile East of Send									
	SW1566	NN66-11-8-1B		NN66-11-8-1A	188	12	PVC	8.6	9	
	SW1565	NN66-11-8-2		NN66-11-8-1	106	12	VCP	9.4	3	
	SW1593	NN66-11-6-2A		NN66-11-6-2	145	12	RCP	9.0	2	
1	Valley South of 10 Mile									
	SW1546	NN66-15-5		NN66-15-4	375	18	VCP	10.5	16	
	SW1545	NN66-15-4		NN66-15-3	445	18	VCP	11.6	17	
2	Grove									
	SW1586	NN66-11-5		NN66-11-4	439	24	VCP	16.0	20	
3	Buick Easement North of 10 Mile									
	SW1876	NN42-30-7-3		NN42-30-7-2	105	12	RCP	7.6	2	
3	Ford North of 10 Mile									
	SW1877	NN42-30-2-3-2		NN42-30-2-3-1	210	12	RCP	9.0	4	
3	Wilson West of Gratiot									
	SW1932	NN42-17-5		NN42-17-4	52	24	VCP	12.7	2	
11	Stephens East of Beechwood									
*	SW1502	NN66-16-3		NN66-16-2	279	12	VCP	11.3	11	

CITY OF EASTPOINTE
2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING
AEW NO. 0145-0653
FCIPP WORK SCHEDULE

MAP NO.	PIPE ID	MANHOLE	TO	MANHOLE	LENGTH (FT)	SIZE (IN)	PIPE MATERIAL	DEPTH OF MH (FT)	NO. OF LATS	COMMENTS
11	Firwood South of Stephens									
	SW1500	NN73-8		NN73-7	407	12	VCP	7.9	16	
	SW1504	NN73-7		NN73-6	400	15	VCP	9.2	26	
12	Hayes South of Stephens									
*	SW1533	NN70-1-7		NN70-1-6	300	12	VCP	8.0	12	
12	North Park East of Hayes									
	SW1628	NN70-2-3A		NN70-2-3	172	12	RCP	7.5	3	
	SW1626	NN70-2-3B		NN70-2-3	100	12	RCP	7.5	2	
12	Linwood South of North Park									
	SW1631	NN70-2-3		NN70-2-2	352	12	RCP	8.4	9	
*	SW1650	NN70-2-2		NN70-2-1	353	15	RCP	9.6	8	
	SW1649	NN70-2-1		NN70-2	352	18	RCP	9.6	6	
12	Dale North of 9 Mile									
	SW1624	NN66-1-6		NN66-1-5	132	12	VCP	8.8	5	
*	SW1629	NN66-1-5		NN66-1-4	218	12	RCP	9.6	8	

CITY OF EASTPOINTE
2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING
AEW NO. 0145-0653
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MAP NO.	PIPE ID	MANHOLE	TO	MANHOLE	LENGTH (FT)	SIZE (IN)	PIPE MATERIAL	DEPTH OF MH (FT)	NO. OF LATS	COMMENTS
12	9 Mile Rd West of Hayes									
	SW1651	NN72-1		NN70-1	495	12	VCP	11.0	6	
13	Nicolai Southeast of Semrau									
*	SW1681	NN66-9-1-4		NN66-9-1-3	257	12	VCP	10.5	11	
13	Deerfield East of Grove									
*	SW1615	NN66-7-1		NN66-7	502	21	VCP	15.1	32	
13	West Gratiot Easement South of Charles R									
*	SW1693	NN66-5-4A		NN66-5-4	160	12	VCP	10.5	7	
13	Stephens East of Grove									
*	SW1714	NN66-10-5		NN66-10-4	400	15	VCP	12.8	22	
13	Semrau									
	SW2008	NN66-9-3		NN66-9-2	327	18	VCP	10.2	13	
14	Gratiot Alley South of Stephens									
*	SW1683	NN66-5-10		NN66-5-9	100	18	VCP	12.3	1	
*	SW2021	NN66-5-8		NN66-5-7	371	21	RCP	13.5	7	
23	Crescentwood East of Elmwood									
	SW0114	NS67-8A		NS67-8	161	15	VCP	9.1	5	

CITY OF EASTPONTE

2022 SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING

AEW NO. 0145-0653

FCIPP WORK SCHEDULE

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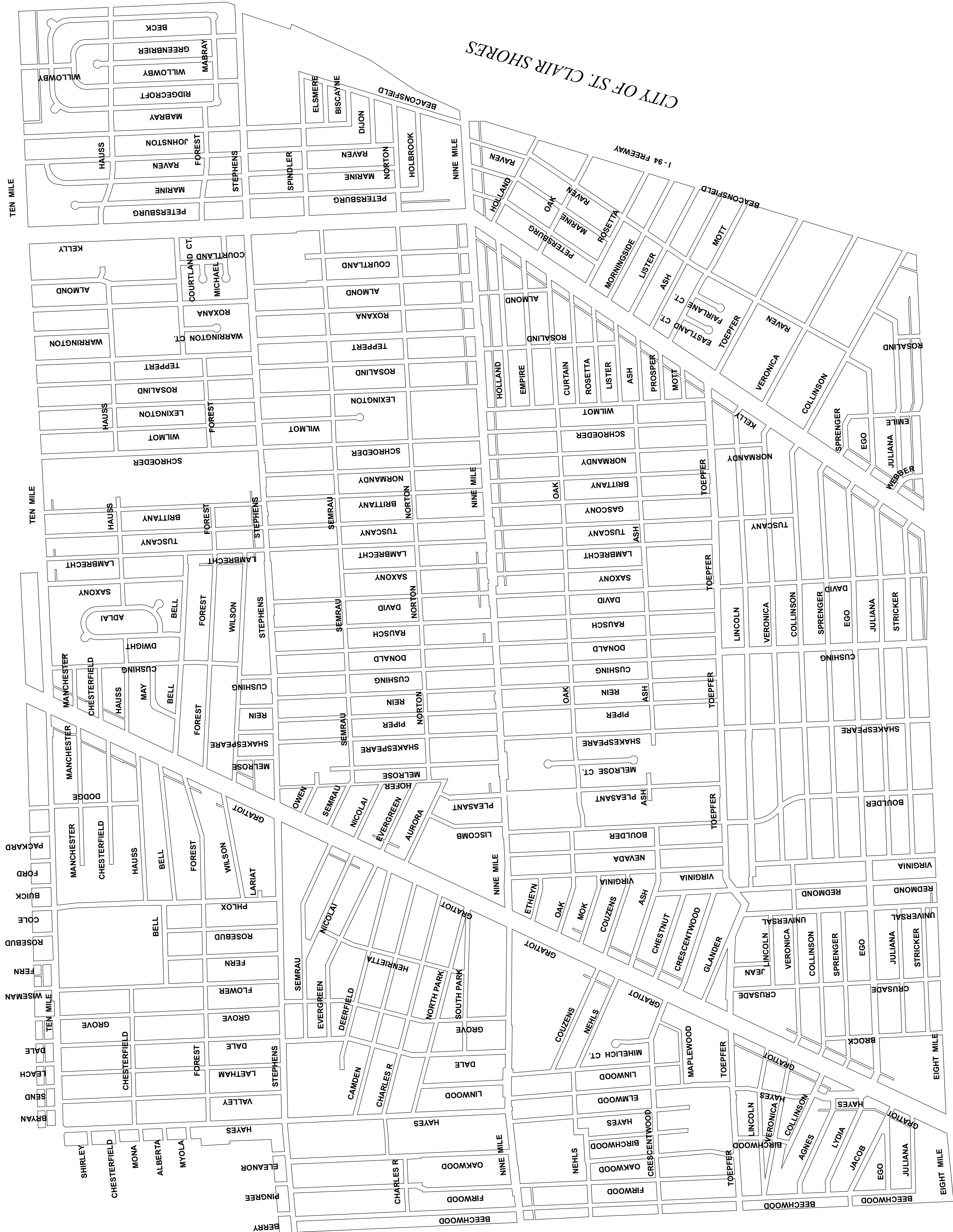
MACOMB COUNTY, MICHIGAN

2022 SANITARY SEWER

REHABILITATION BY

FULL LENGTH C.I.P.P. LINING

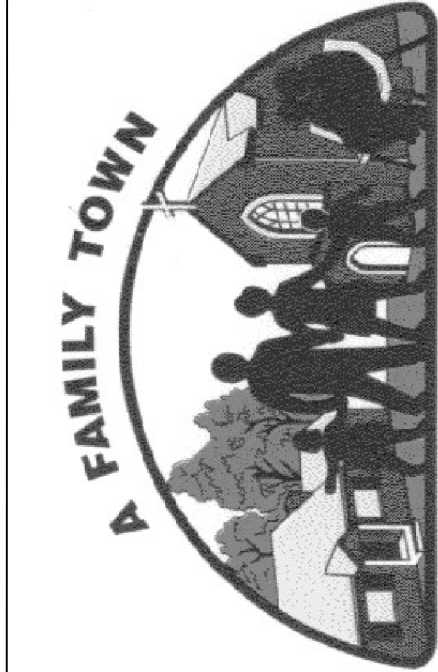
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CITY OF DETROIT



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CIVIL ENGINEERS SURVEYORS ARCHITECTS
1025 HERR RD. SHELBY TOWNSHIP, MI 48315
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City of Eastpointe

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CITY of EASTPONTE

MACOMB COUNTY, MICHIGAN

2022 SANITARY SEWER REHABILITATION BY FULL LENGTH C.I.P.P. LINING


AEW JOB NUMBER 0145-0653

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 ANDERSON, ECKSTUT & WESTRICK, INC. CIVIL ENGINEERS SURVEYORS ARCHITECTS 51301 SCOEHLER RD., SHELBY TOWNSHIP, MI 48315 www.aewinc.com pl(586)726-1234	PLOT DATE: 12/20/2021		DRAWING DATE: 12/20/2021	
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City of Eastpointe

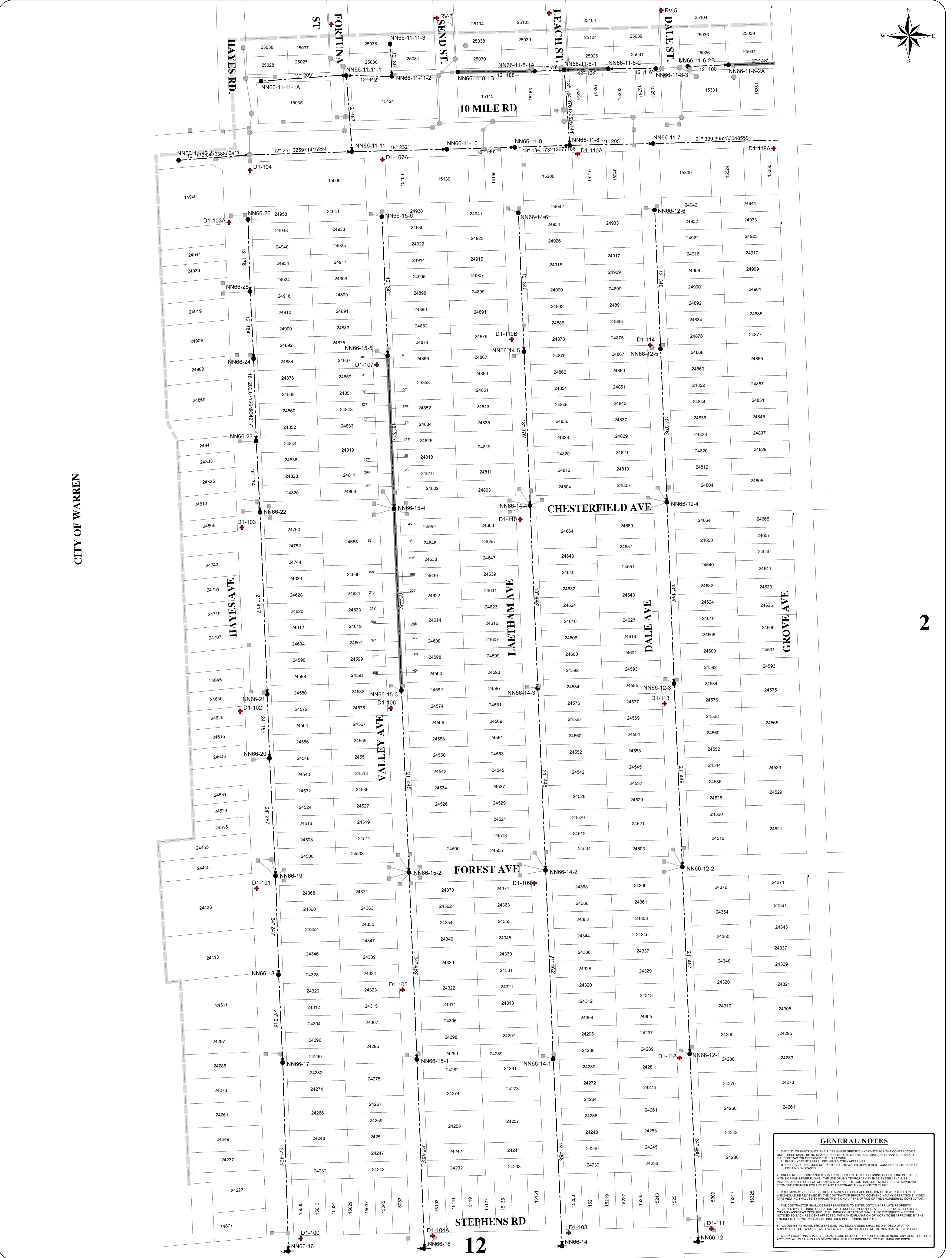
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GENERAL NOTES

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A. PUMP HYDRANT SHALL BE DRY IMMEDIATELY AFTER USE.
B. OBSERVING GUIDELINES SET FORTH BY THE WATER DEPARTMENT CONCERNING THE USE OF EXISTING HYDRANTS.

2. UNDER NO CIRCUMSTANCES SHALL ANY PORTION OF THE CLEANING OPERATIONS INTERFERE WITH NORMAL SEWER FLOW. THE USE OF ANY TEMPORARY BYPASS SYSTEM SHALL BE INCLUDED IN THE COST OF CLEANING SEWERS. THE CONTRACTORS MUST RECEIVE APPROVAL FROM THE ENGINEER FOR USE OF ANY TEMPORARY FLOW CONTROL PLUGS.

3. PRELIMINARY VIDEO INSPECTION IS AVAILABLE FOR EACH SECTION OF SEWER TO BE LINED AND SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO COMMENCING ANY OPERATIONS. VIDEO TAPE VIEWING SHALL BE BY APPOINTMENT ONLY AT THE OFFICE OF THE ENGINEERING CONSULTANT.

4. THE CONTRACTOR SHALL OBTAIN PERMISSION TO ENTER ONTO ANY PRIVATE PROPERTY AFFECTED BY THE LIVING OPERATION. WITH SUFFICIENT NOTICE, A REPRESENTATIVE FROM THE CITY MAY ASSIST AS REQUIRED. THE LIVING CONTRACTOR SHALL ALSO DISTRIBUTE WRITTEN NOTICES TO EACH RESIDENT AFFECTED, WITH AN EXPLANATION OF WORK TO BE APPROVED BY THE ENGINEER. THIS WORK SHALL BE COMPLETED BY THE LIVING PROJECT.

5. ALL DEBRIS REMOVED FROM THE EXISTING SEWER LINES SHALL BE DISPOSED OF AT AN ACCEPTABLE SITE, AS APPROVED BY ENGINEER, AND SHALL BE AT THE CONTRACTORS EXPENSE.

6. C.I.P.P. LOCATIONS SHALL BE CLEANED AND DE-ROOTED PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY. ALL CLEANING AND DE-ROOTING SHALL BE INCIDENTAL TO THE LIVING BID PRICE.

Anderson, Eckstein & Westrick, Inc.

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PROJECT NO: 0145-0653

DATE CREATED: January 6, 2022

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A FAMILY TOWN

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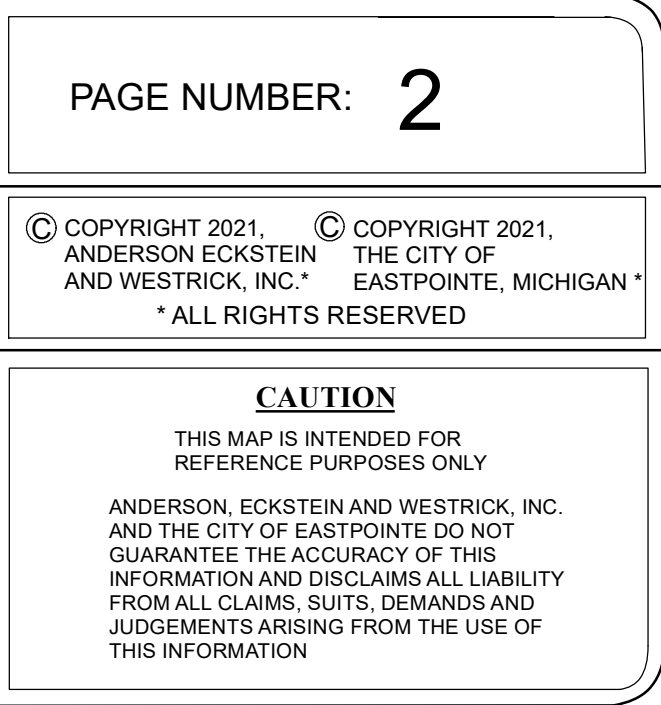
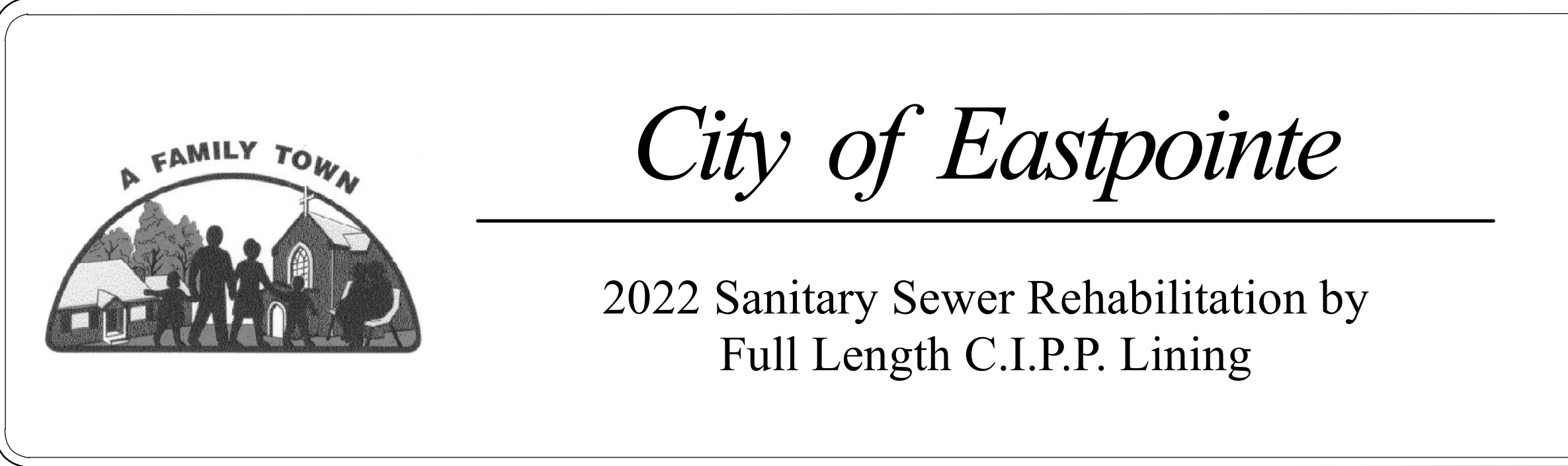
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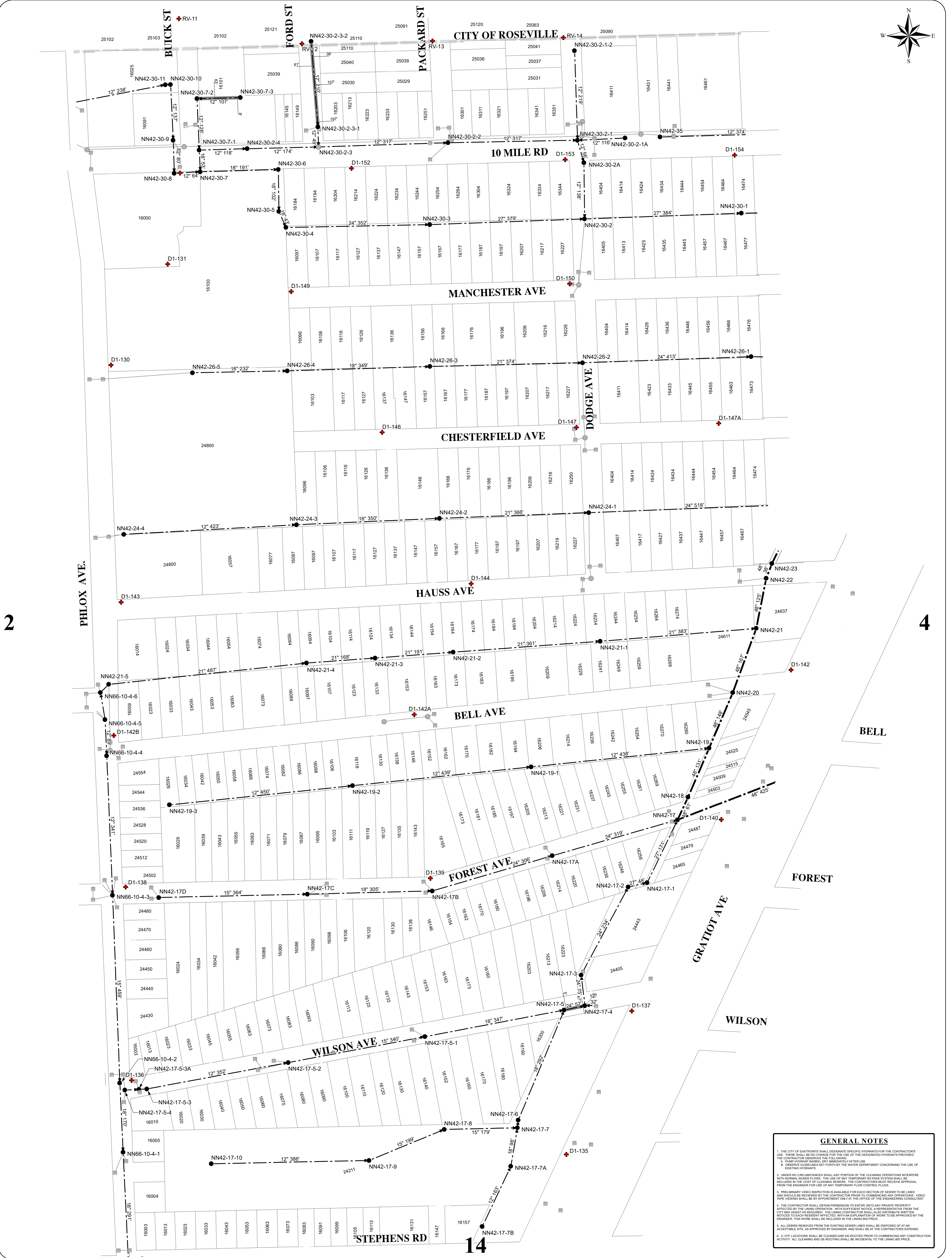
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- GENERAL NOTES**
1. THE CITY OF EASTPOINTE SHALL DESIGNATE SPECIFIC HYDRANTS FOR THE CONTRACTOR'S USE. THESE SHALL BE NO CHARGE FOR THE USE OF THE DESIGNATED HYDRANTS PROVIDED THE CONTRACTOR OBSERVES THE FOLLOWING:
A. PUMP-HYDRANT SHALLS DRY IMMEDIATELY AFTER USE.
B. OBSERVING GUIDELINES SET FORTH BY THE WATER DEPARTMENT CONCERNING THE USE OF EXISTING HYDRANTS.
 2. UNDER NO CIRCUMSTANCES SHALL ANY PORTION OF THE CLEANING OPERATIONS INTERFERE WITH NORMAL SEWER FLOWS. THE USE OF ANY TEMPORARY BYPASS SYSTEM SHALL BE INCLUDED IN THE COST OF CLEANING SEWERS. THE CONTRACTORS MUST RECEIVE APPROVAL FROM THE ENGINEER FOR USE OF ANY TEMPORARY FLOW CONTROL PLUGS.
 3. PRELIMINARY VIDEO INSPECTION IS AVAILABLE FOR EACH SECTION OF SEWER TO BE LINED AND SHOULD BE REVIEWED BY THE CONTRACTOR PRIOR TO COMMENCING ANY OPERATIONS. VIDEO TAPE VIEWING SHALL BE BY APPOINTMENT ONLY AT THE OFFICE OF THE ENGINEERING CONSULTANT.
 4. THE CONTRACTOR SHALL OBTAIN PERMISSION TO ENTER ONTO ANY PRIVATE PROPERTY AFFECTED BY THE LIVING OPERATION. WITH SUFFICIENT NOTICE, A REPRESENTATIVE FROM THE CITY MAY ASSESS AS REQUIRED. THE LIVING CONTRACTOR SHALL ALSO DISTRIBUTE WRITTEN NOTICES TO EACH RESIDENT AFFECTED, WITH AN EXPLANATION OF WORK TO BE APPROVED BY THE ENGINEER. THIS WORK SHALL BE INCLUDED IN THE LIVING PRICE.
 5. ALL DEBRIS REMOVED FROM THE EXISTING SEWER LINES SHALL BE DISPOSED OF AT AN ACCEPTABLE SITE, AS APPROVED BY ENGINEER, AND SHALL BE AT THE CONTRACTORS EXPENSE.
 6. C.I.P.P. LOCATIONS SHALL BE CLEANED AND DE-ROOTED PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY. ALL CLEANING AND DE-ROOTING SHALL BE INCIDENTAL TO THE LIVING BID PRICE.

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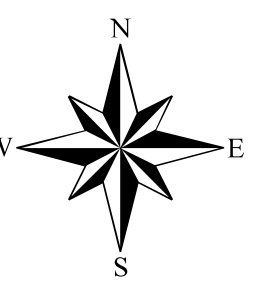
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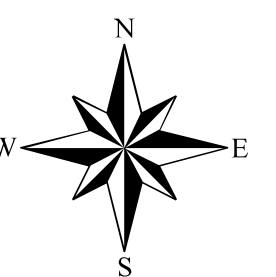


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City of Eastpointe

2022 Sanitary Sewer Rehabilitation by Full Length C.I.P.P. Lining



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THE CITY OF EASTON/STATE SHALL DESIGNATE SPECIFIC HYDRANTS FOR THE CONTRACTORS USE. THERE SHALL BE NO CHARGE FOR THE USE OF THE DESIGNATED HYDRANTS PROVIDED THE CONTRACTOR SHALL NOT EXCEED FIVE (5) FEET FROM THE HYDRANT.

A. PUMP/HYDRANT BARREL DUE IMMEDIATELY AFTER USE

B. THE CONTRACTOR SHALL NOT FIGHT THE WATER DEPARTMENT CONCERNING THE USE OF EXISTING HYDRANTS.

2. UNDER NO CIRCUMSTANCES SHALL ANY PORTION OF THE CLEANING OPERATIONS INTERFERE WITH HYDRANT OPERATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE HYDRANT. THE CITY OF EASTON/STATE SHALL BE NOTIFIED IMMEDIATELY BY THE CONTRACTOR IF ANY DAMAGE IS INCURRED IN THE COURSE OF CLEANING REVERIES. THE CONTRACTORS MUST RECEIVE APPROVAL FROM THE CITY OF EASTON/STATE BEFORE ANY WORK IS COMMENCED.

3. PRELIMINARY VIDEO INSPECTION IS AVAILABLE FOR EACH SECTION OF SEWER TO BE LINED AND SHOULD BE REVIEWED BY THE CONTRACTOR PRIOR TO COMMENCING ANY OPERATIONS. VIDEO INSPECTION SHALL BE CONDUCTED BY THE CITY OF EASTON/STATE.

4. THE CONTRACTOR SHALL OBTAIN PERMISSION TO ENTER INTO ANY PRIVATE PROPERTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY PRIVATE PROPERTY. THE CITY MAY ASSIGN ASSETS TO THE LINING CONTRACTOR SHALL ALSO DISTRIBUTE WRITTEN NOTICES TO ALL ADJACENT PROPERTY OWNERS. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE ENGINEER. THIS WORK SHALL BE INCLUDED IN THE LINING BID PRICE.

5. ALL DEBRIS REMOVED FROM THE EXISTING SEWER LINE SHALL BE DISPOSED OF AT AN APPROVED LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL.

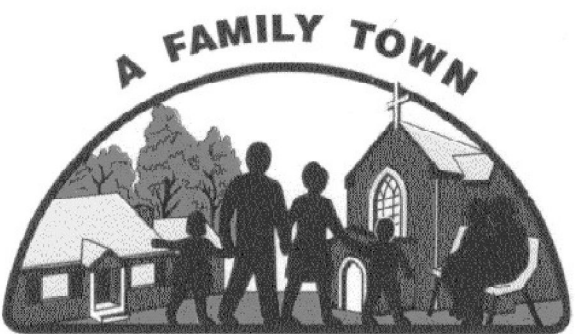
6. CIPP LAYING SHALL BE CLEANED AND DE-ROOTED PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY. ALL CLEANING AND DE-ROOTING SHALL BE INCIDENTAL TO THE LINING BID PRICE.

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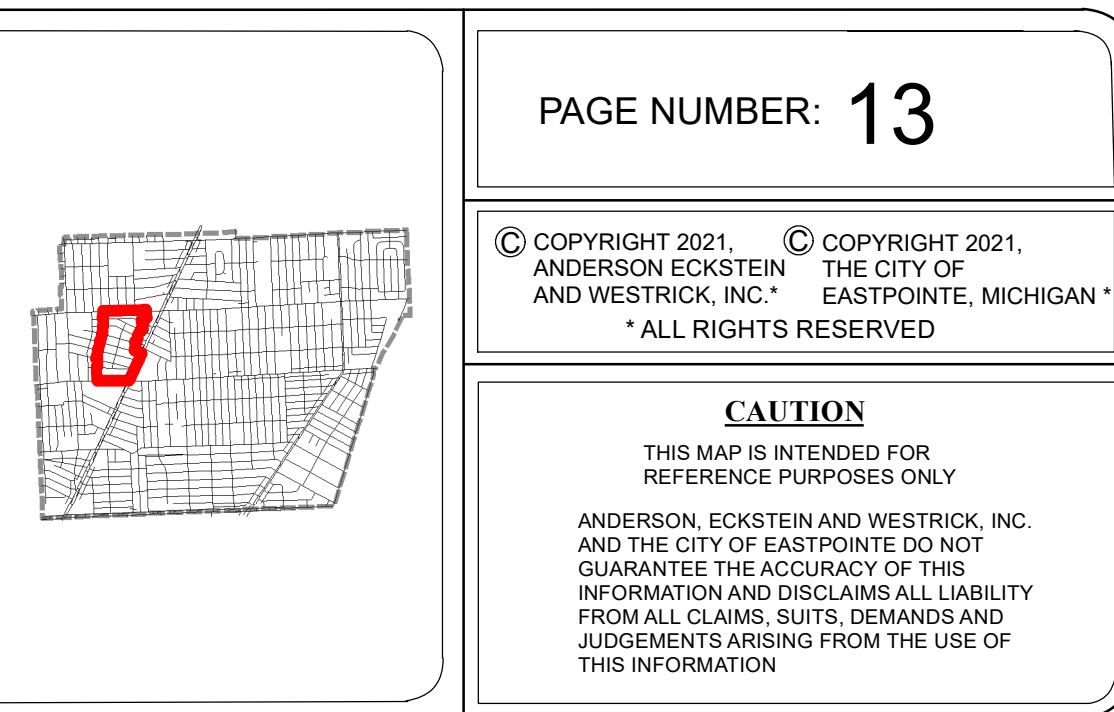
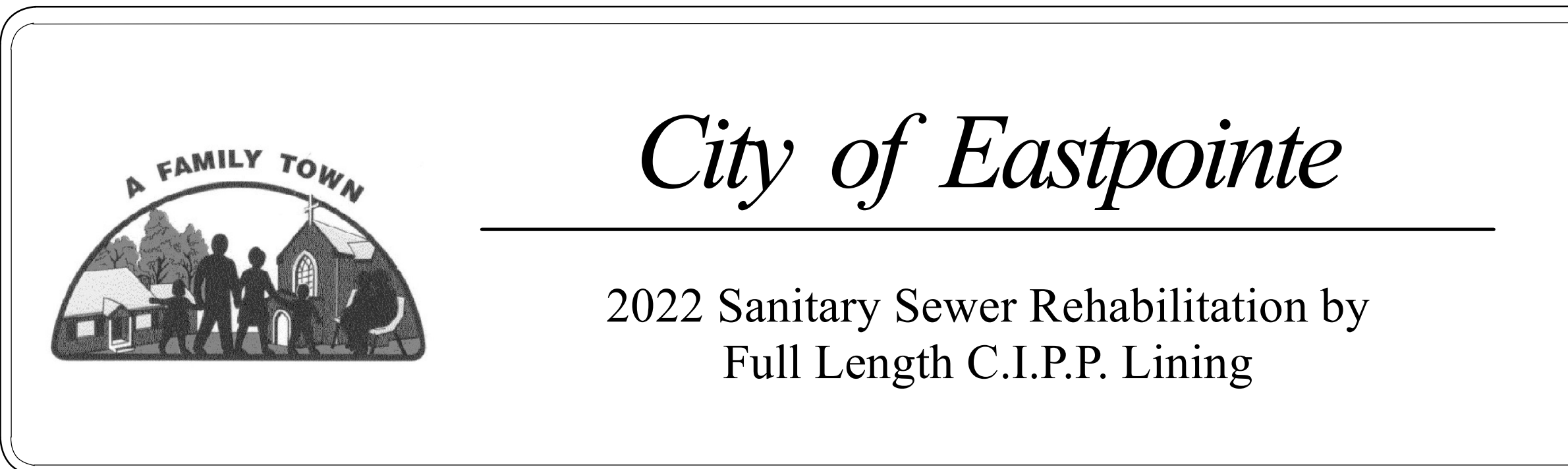
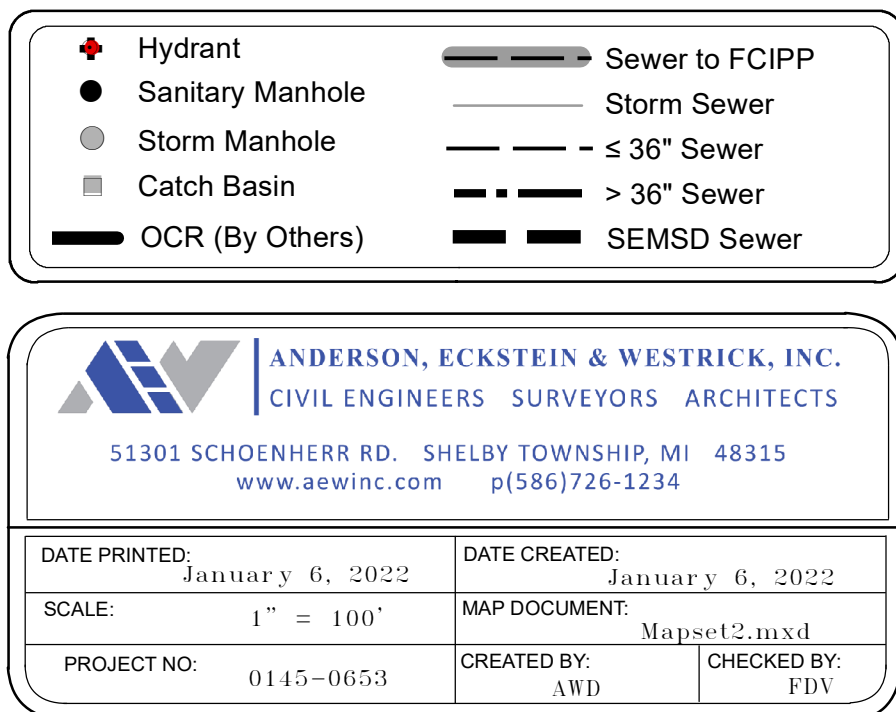


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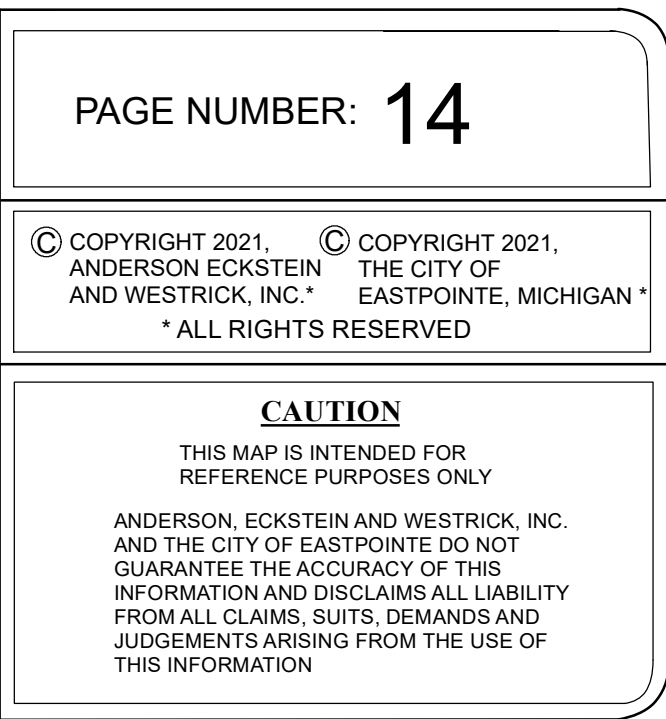




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City of Eastpointe

2022 Sanitary Sewer Rehabilitation by Full Length C.I.P.P. Lining





GENERAL NOTES

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A. SUMMER HYDRANT SHALL BE IMMEDIATELY AFTER USE.

B. OBSERVE GUIDELINES SET FORTH BY THE WATER DEPARTMENT CONCERNING THE USE OF EXISTING HYDRANTS.

2. UNDER NO CIRCUMSTANCES SHALL ANY PORTION OF THE CLEANING OPERATIONS INTERFERE WITH NORMAL SEWER FLOWS. THE USE OF ANY TEMPORARY BYPASS SYSTEM SHALL BE INCLUDED IN THE COST OF CLEANING SEWERS. THE CONTRACTORS MUST RECEIVE APPROVAL FROM THE ENGINEER FOR USE OF ANY TEMPORARY FLOW CONTROL PLUGS.

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ANDERSON, ECKSTEIN & WESTRICK, INC.
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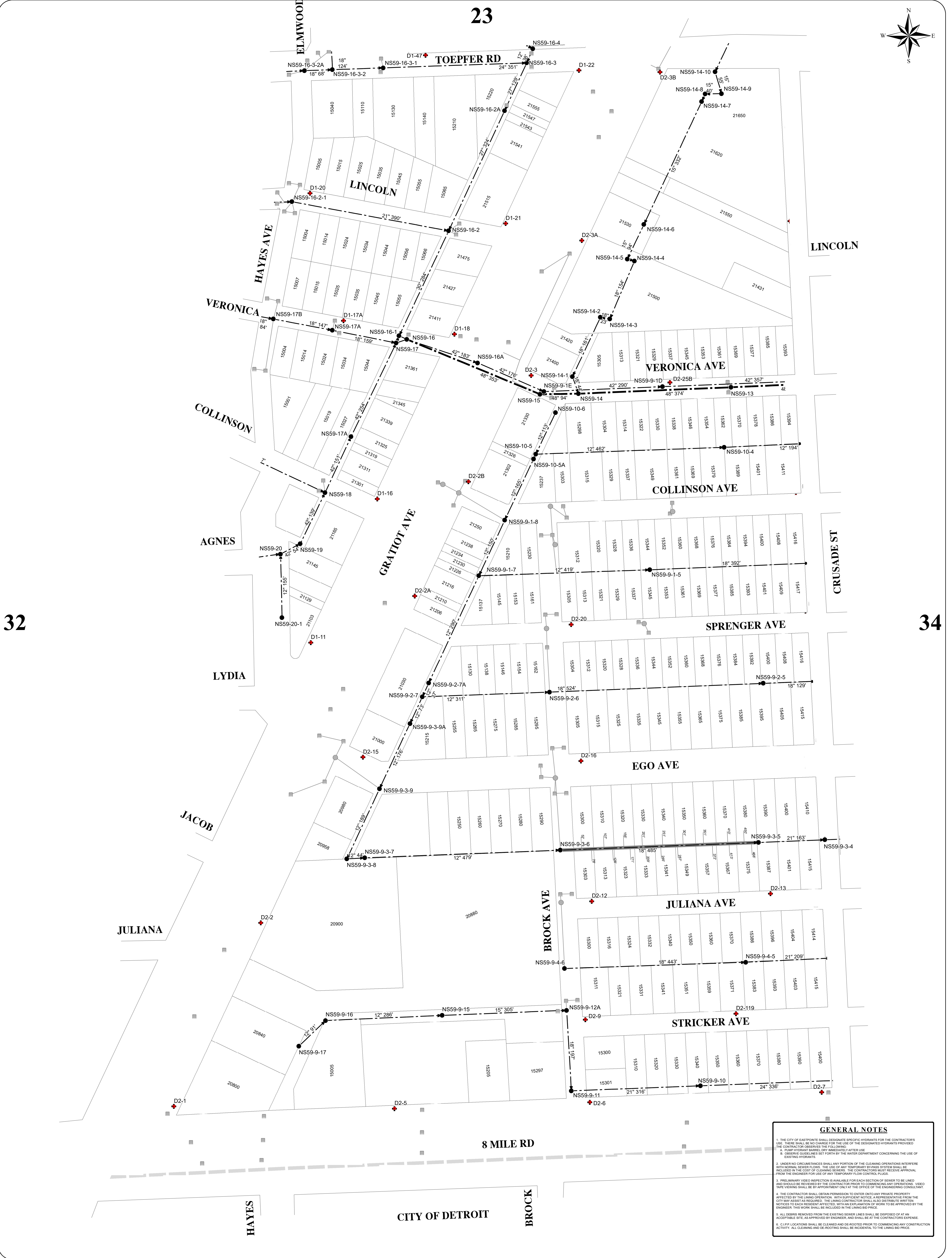
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6. C.I.P.P. LOCATIONS SHALL BE CLEANED AND DE-ROOTED PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITY. ALL CLEANING AND DE-ROOTING SHALL BE INCIDENTAL TO THE LINED BID PRICE.

Hydrant

Sanitary Manhole

Storm Manhole

Catch Basin

OCR (By Others)

Sewer to FCIPP

Storm Sewer

≤ 36" Sewer

> 36" Sewer

SEMSD Sewer

Anderson, Eckstein & Westrick, Inc.

Civil Engineers Surveyors Architects

51301 Schoenherr Rd. Shelby Township, MI 48315

www.aewinc.com

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AWD

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FDV

A FAMILY TOWN

City of Eastpointe

2022 Sanitary Sewer Rehabilitation by

Full Length C.I.P.P. Lining

City of Eastpointe

2022 Sanitary Sewer Rehabilitation by

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