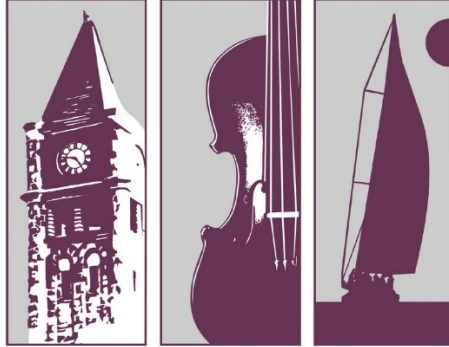


# MUSKEGON



West Michigan's Shoreline City  
[www.shorelinecity.com](http://www.shorelinecity.com)

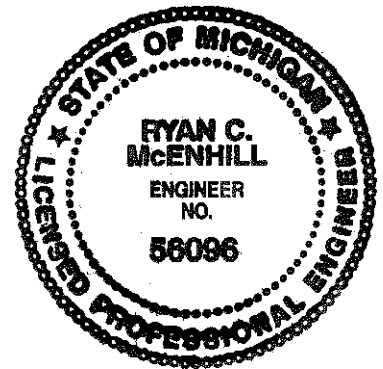
## PROJECT MANUAL FOR SPRING STREET SEWER REROUTE AND BOURDON STREET ALLEY SEWER

MICHIGAN EGLE SRF PROJECT NO. 5675-01  
MICHIGAN EGLE DWRF PROJECT NO. 7449-01  
CITY OF MUSKEGON PROJECTS NO. S-91850 & S-91851

MAY 2019

**Eng.**  
Engineering & Surveying  
16930 Robbins Road Suite 105  
Grand Haven, MI 49417

Copyright 2019  
Eng., Inc.  
All rights reserved.



*Ryan C. McEnhill*

5/10/2019

SECTION 00003

TABLE OF CONTENTS

BIDDING REQUIREMENTS AND CONDITIONS OF THE CONTRACT

Section 00001	Title Page
Section 00003	Table of Contents
Section 00030	Advertisement for Bids
Section 00100	Instructions to Bidders
Section 00110	Clean Water State Revolving Fund and Drinking Water Revolving Fund
	Davis-Bacon / Prevailing Federal Wages
	Disadvantaged Business Enterprise (DBE) Requirements
	Debarment / Suspension Certification
Section 00220	Geotechnical Data
Section 00314	Bid
Section 00410	Bid Bond
Section 00500	Agreement
Section 00610	Construction Performance Bond
Section 00620	Construction Payment Bond
Section 00700	General Conditions
Section 00800	Supplementary Conditions
Section 00900	Forms
Section 00900.1	Notice of Award
Section 00900.2	Work Change Directive
Section 00900.3	Change Order
Section 00900.4	Application for Payment
Section 00900.5	Certificate of Substantial Completion
Section 00900.6	Bulletin
Section 00920	Addendum
Section 00954	Notice to Proceed

DIVISION 1 – GENERAL REQUIREMENTS

Section 01010	Summary of Work
Section 01012	Staking and Inspection Services
Section 01035	Modification Procedures
Section 01200	Meetings
Section 01300	Submittals
Section 01410	Testing Services
Section 01700	Contract Closeout

CITY OF MUSKEGON STANDARD SPECIFICATIONS

General Specifications for Project Performance
Materials – City of Muskegon Division 2
Sewers – City of Muskegon Division 12
Watermain – City of Muskegon Division 13

SPECIAL PROVISIONS

Progress Clause
Utility Coordination

Abandon Utilities
Audio Visual Filming
Backfill, Lightweight, Slag Aggregate
Dewatering System
Dr Structure Cover, Modified
Drainage Structure Cover, ADA Compliant
Helical Piles
Machine Grading, Modified
Maintaining Traffic

Non-hazardous Contaminated Material Handling and Disposal  
Pavt, Rem, Modified  
Pollinator Trees  
Sanitary Manhole, Meter Pit, 84 inch Dia  
Sanitary Sewer, Drop Connection  
Sanitary Sewer, Fusible PVC, 30 inch, Bore and Jack  
Surcharge Roadway  
Textured Asphalt Crosswalk  
Turf Establishment, Performance

END OF SECTION

## INVITATION FOR BIDS

**Project:**

**CITY OF MUSKEGON  
SPRING STREET SEWER REROUTE AND BOURDON STREET ALLEY SEWER  
MICHIGAN EGLE SRF PROJECT NO. 5675-01  
MICHIGAN EGLE DWRP PROJECT NO. 7449-01  
CITY OF MUSKEGON PROJECT NO. S-91850 & S-91851**

**The City of Muskegon, Michigan will receive sealed bids until 2:00 p.m. local time on Thursday, June 27, 2019, at the City Clerk's Office, City Hall, 933 Terrace Street, Muskegon, Michigan, at which time and place all bids will be publicly opened and read aloud for the following items of work to include:**

0.53 miles of HMA roadway reconstruction including sand subbase, aggregate base, roadway surcharging, curb and gutter, sidewalk and ADA ramps, 2,173 lineal feet of sanitary sewer ranging in size from 8-inch to 27-inch, including two (2) bore and jack operations, 12 helical pile installations, flow meter upgrade, and associated appurtenances, and also 1,508 lineal feet of DI water main ranging in size from 6-inch to 16-inch with associated appurtenances for the Spring Street and Yuba Street project.

And also:

365 lineal feet of 8-inch sanitary sewer replacement with associated appurtenances and gravel alley restoration for the Bourdon and Addison Alley project.

Electronic copies of Plans and Specifications may be obtained on or after Tuesday, May 28, 2019 from the City of Muskegon website, or by request to the Engineering Department via phone or email; 231.724.6707 or [engineering@shorelinecity.com](mailto:engineering@shorelinecity.com). Printed copies can be obtained by request from the Engineering Department located at 1350 E. Keating Ave, Muskegon MI, 49442 for a cost of \$40.

An amount equal to five percent (5%) of the Bid must be submitted with each Bid Proposal in one of three forms acceptable to the City of Muskegon. Contract documents may be examined at the following locations:

Contract documents may be examined at the following locations:

- Public Services Building, 1350 E. Keating Ave., Muskegon MI 49442
- City of Muskegon website: [www.shorelinecity.com](http://www.shorelinecity.com)
- Grand Rapids Builders Exchange

Attention is called to the fact that the City requires: the Contractor consider hiring local work force insofar as possible, not less than the salaries and wages set forth in the Specifications must be paid, 14% minority and 6.9% female are the goals established for participation in each trade, the Contractor must ensure employees and applicants for employment are not discriminated against based upon their race, creed, color, religion, sex, national origin, handicapped condition nor veteran background, and all pertinent regulations must be complied with. Bids may not be withdrawn within sixty (60) days after bid opening. The City of Muskegon reserves the right to reject any or all bids or to waive any informalities or irregularities in the bidding.

**A Mandatory Pre-Bid Conference will be held in the Conference Room at the City of Muskegon Public Services Building located at 1350 E Keating Avenue at 2:00 p.m. on, Monday, June 10, 2019, at which time and place any questions regarding this Project should be presented. Minutes from the Pre-Bid Conference will become an Addendum to the Contract.**

CITY OF MUSKEGON, MICHIGAN  
By: Ann Meisch, City Clerk

PUBLISH: 5/28/2019

**ADA POLICY**

The City will provide necessary appropriate auxiliary aids services, for example, signers for the hearing impaired, audio tapes for the visually impaired, etc., for disabled persons who want to attend the meeting, upon twenty-four hour notice to the City.  
Contact:

**Ann Meisch, City Clerk  
City of Muskegon, City Hall  
933 Terrace Street, Muskegon, MI 49440  
(231) 724-6705 or TDD (231) 724-6773**

## SECTION 00100

### INSTRUCTIONS TO BIDDERS

#### ARTICLE 1 - DEFINED TERMS

1.1. Terms used in these Instructions to Bidders and defined in Section 00700: General Conditions (Standard General Conditions of the Construction Contract, EJCDC, C-700, 2002 edition) and have the meanings assigned to them in Section 00700: General Conditions.

1.2. Other terms used in the Bidding Documents and not defined elsewhere have the following meanings, which are applicable to both the singular and plural thereof:

Bidder - One who submits a Bid directly to OWNER, as distinct from a sub-bidder, who submits a bid to a Bidder.

Successful Bidder - The lowest, responsive, responsible Bidder to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

#### ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.1. Complete sets of the Bidding Documents in the number and for the fee, if any, stated in the Advertisement for Bids may be obtained from ENGINEER.

2.2. Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretation resulting from the use of incomplete sets of Bidding Documents.

2.3. OWNER and ENGINEER, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

#### ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.1. Each Bidder must be prepared to submit, within 5 days of OWNER's request, written evidence of qualifications to perform the Work. The written evidence will include: financial data, previous experience, present commitments and other such data as may be requested by OWNER. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or Bidder must covenant to obtain such qualification prior to award of the Contract.

3.2. In addition to the above, when so requested, Bidder shall meet with OWNER's representatives and give further information in order to determine Bidder's qualifications, responsibility, and ability to perform and complete the Work in accordance with the Contract Documents.

3.3. OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of, a Bidder fails to satisfy OWNER that the Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.

#### ARTICLE 4 - EXAMINATION OF CONTRACT DOCUMENTS AND SITE

4.1. It is the responsibility of each Bidder before submitting a Bid:

- 4.1.1. To examine thoroughly the Contract Documents and other related data identified in the Bidding Documents including technical data referred to below, if any;
- 4.1.2. To visit the Site to become familiar with and satisfy Bidder as to the general, local and Site conditions that may affect cost, progress, performance or furnishing of the Work;
- 4.1.3. To consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
- 4.1.4. To study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data; and
- 4.1.5. To promptly notify ENGINEER of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents and such other related documents.

4.2. Refer to Section 00800: Supplementary Conditions for information on reference materials, if any, which ENGINEER has used in preparing the Contract Documents and a determination of the "technical data" therein upon which CONTRACTOR may rely.

4.3. Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site are based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities or others, and OWNER and ENGINEER do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in Section 00800: Supplementary Conditions.

4.4. Provisions concerning responsibilities for the adequacy of data, if any, furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Contract Documents due to differing or unanticipated conditions appear in paragraphs 4.02 and 4.03 of Section 00700: General Conditions.

4.5. Before submitting a bid, each Bidder will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site or otherwise, which may affect cost, progress, performance or furnishing of the Work and which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

4.6. On request, OWNER will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests and studies as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the Site to its former condition upon completion of such examinations, investigations, explorations, tests and studies.

4.7. Reference is made to the Contract Documents and Section 01010: Summary of Work, for the identification of the general nature of work, if any, that is to be performed at the Site by OWNER or others (such as utilities and other prime contractors) that relates to the Work for which a Bid is to be submitted. On request, OWNER will provide to each Bidder for examination access to or copies of Contract Documents, if any, (other than portions thereof related to price) for such work.

4.8. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Contract Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by ENGINEER is acceptable to Bidder, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

4.9. The provisions of 4.1 through 4.7, inclusive, do not apply to Asbestos, Polychlorinated biphenyls (PCBs), Petroleum, Hazardous Waste or Radioactive Material covered by Paragraph 4.06 of Section 00700: General Conditions, unless they are shown or indicated in the Documents and Specifications or identified in the Contract Document.

#### ARTICLE 5 - AVAILABILITY OF LANDS FOR WORK, ETC.

5.1. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.

#### ARTICLE 6 - INTERPRETATIONS AND ADDENDA

6.1. All questions about the meaning or intent of the Bidding Documents are to be directed to ENGINEER. Interpretations or clarification considered necessary by ENGINEER in response to such questions will be issued by Addenda which will be mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than 3 days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarification will be without legal effect.

6.2. Addenda may also be issued to modify the Bidding Documents as deemed advisable by OWNER or ENGINEER.

#### ARTICLE 7 - BID SECURITY

7.1. Each Bid must be accompanied by Bid security made payable to OWNER in the amount of 5% of the Bidders maximum Bid price and in the form of a certified or bank check or a Bid Bond (optional form attached) issued by a surety meeting the requirements of paragraph 5.01 of Section 00700: General Conditions.

7.2. The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If successful Bidder fails to execute and deliver the Agreement and furnish the required Contract security within 15 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of the 7th day after the Effective Date of Agreement or the 91<sup>ST</sup> day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within 7 days after the Bid opening.

#### ARTICLE 8 - SRF CONTRACT REQUIREMENTS

8.1. P.L. 111-88 requires compliance with the Davis Bacon Act and adherence to the current U.S. Department of Labor Wage Decision. Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents (see Wage Decision included herein) must be paid on this project. The Wage Decision, including modifications, must be posted by the Contractor on the job site. A copy of the Federal Labor Standards Provisions is included and is hereby a part of this contract.

8.2. The Contractor must provide a completed Certification Regarding Debarment, Suspension, and Other Responsibility Matters Form with its bid.

8.3. The Contractor must provide a Disadvantaged Business Enterprise (DBE) Utilization Good Faith Efforts Worksheet and supporting documentation with its bid. Additional instructions to bidders are provided in the Required Standard Contract Language for Clean Water State Revolving Fund and Drinking Water Revolving Fund.

#### ARTICLE 9 - CONTRACT TIMES

9.1. The dates by which the Work is to be substantially completed and also completed and ready for final payment (the Contract Times) are set forth in the Bid form and the Agreement.

#### ARTICLE 10 - LIQUIDATED DAMAGES

10.1. Provisions for liquidated damages, if any, are set forth in the City of Muskegon General Specifications.

#### ARTICLE 11 - SUBSTITUTE AND "OR EQUAL" ITEMS

11.1. The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items.

11.2. Whenever materials or equipment are indicated in the Drawings or specified in the Specifications by using the name of one or more Suppliers, the bid shall be based on providing the materials or equipment of one of the Suppliers name.

11.3. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in paragraph 6.05 of Section 00700: General Conditions, which may be supplemented in Division 1 – General Requirements.

#### ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS AND OTHERS

12.1. If Section 00800: Supplementary Conditions requires or if OWNER requests the identity of certain Subcontractors, Suppliers, and other persons and organizations (including those who are to furnish principal items of material and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within 7 days after the Bid opening submit to OWNER a list of all such Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar



projects and other evidence of qualifications for each such Subcontractor, Supplier, person or organization if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, or other person or organization, either may, before the Notice of Award is given request the apparent Successful Bidder to submit an acceptable substitute in which case the apparent Successful Bidder shall submit an acceptable substitute, that Bidders Bid price will be increased (decreased) by the difference in cost occasioned by such substitution and OWNER may consider such price adjustments in evaluating bids and making the Contract award. If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest bidder that proposed to use acceptable Subcontractors, Suppliers, and other persons and organizations. Declining to make requested substitutions will not constitute ground for forfeiting the Bid security of any Bidder. Any Subcontractor, Supplier, other person or organization listed and to whom OWNER or ENGINEER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the documents as provided in paragraph 6.06 of Section 00700: General Conditions.

12.2. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, other person or organization against whom CONTRACTOR has reasonable objection except as identified in those Procurement Contracts, if any, which will be assigned to the CONTRACTOR and identified in the Contract Documents.

#### ARTICLE 13 - BID FORM

13.1. The Bid form is included with the Bidding Documents; additional copies may be obtained from ENGINEER.

13.2. All blanks of the Bid form must be completed legibly in ink or by typewriter.

13.3. Bids by corporations must be executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed, if required by state law, and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be indicated below the signature.

13.4. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be indicated below the signature.

13.5. All names must be typed or printed below the signature.

13.6. The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which shall be filled in on the Bid form).

13.7. The address and telephone number for communications regarding the Bid must be indicated.

13.8. Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided in accordance with Article 3 above. State contractor license number, if any, must also be shown.

#### ARTICLE 14 - SUBMISSION OF BIDS

14.1. Bids shall be submitted at the time and place indicated in the Advertisement for Bids and shall be enclosed in an opaque, sealed envelope, marked with the Project title and name and address of the Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED – SPRING STREET SEWER REROUTE AND BOURDON STREET ALLEY SEWER" on the face of it.

14.2. Each prospective Bidder is furnished one copy of the Bidding Documents with one separate unbound copy each of the Bid form. The unbound copy of the Bid form is to be completed and submitted with the Bid security.

#### ARTICLE 15 - MODIFICATIONS WITH WITHDRAWAL OF BIDS

15.1. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

15.2. 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, that Bidder will be disqualified from further bidding on the Work. No withdrawal of a Bid shall be permitted on account of mistake or any other reason after the expiration of this 24 hour period.

#### ARTICLE 16 - OPENING OF BIDS

16.1. Bids will be opened and, unless obviously nonresponsive, read aloud publicly at the place where Bids are to be submitted. An abstract of the amount of the Bids and alternatives will be made available to Bidders after the opening of Bids.

#### ARTICLE 17 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.1. All Bids will remain subject to acceptance for 90 days after the day of the Bid opening, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.

#### ARTICLE 18 - AWARD OF CONTRACT

18.1. OWNER reserves the right to reject any or all bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. OWNER also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate Contract terms with the Successful Bidder. Discrepancies in 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. Discrepancies between words and figures will be resolved in favor of the words.

18.2. In evaluating Bids, OWNER will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, unit prices and other data, as may be requested in the Bid form or prior to the Notice of Award.

18.3. OWNER may consider the qualifications and experience of Subcontractors, Suppliers and other persons and organizations proposed for the Work. OWNER also may consider the operating costs, maintenance considerations, performance data and guarantees of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

18.4. OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors, Suppliers, other persons and organizations to do the Work in accordance with the Contract Documents to OWNER's satisfaction within the prescribed time.

18.5. If the Contract is to be awarded, it will be awarded on the basis of the Total Amount to the lowest Bidder whose evaluation by OWNER indicates to OWNER that the award will be in the best interest of the Project.

Alternatives will not be considered in the award of this Contract.

18.6. If the Contract is to be awarded, OWNER will give Successful Bidder Notice of Award within 90 days after the day of the Bid opening.

#### ARTICLE 19 - CONTRACT INSURANCE AND SECURITY

19.1. Paragraphs 5.03 through 5.10, of Section 00700: General Conditions and the City of Muskegon General Specifications for Project Performance set forth OWNER's requirements as to insurance. When Successful Bidder delivers the executed Agreement to OWNER, it shall be accompanied by the required certificates of insurance (and other evidence of insurance requested by OWNER).

19.2. Paragraph 5.01 of Section 00700: General Conditions and the City of Muskegon General Specifications for Project Performance set forth OWNER's requirements as to Performance and Payment Bonds. When Successful Bidder delivers the executed Agreement to OWNER, it shall be accompanied by the required Performance and Payment Bonds.

#### ARTICLE 20 - SIGNING OF AGREEMENT

20.1. When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within 15 days thereafter, CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement to OWNER with the required Bonds and certificates of insurance. Within 10 days thereafter, OWNER will deliver one fully signed counterpart to CONTRACTOR.

ARTICLE 21 - PREBID CONFERENCE

21.1. A mandatory prebid conference will be held on Monday, June 10, 2019 at 2:00 p.m. local time at City of Muskegon City Hall. Representative of OWNER and ENGINEER will be present to discuss the Project. Bidders are required to attend and participate in the conference. 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 22 - RETAINAGE AND PROGRESS PAYMENTS

22.1. Provisions concerning retainage and progress payments are set forth in the Agreement.

22.2. Retainages and progress payments will be in accordance with State of Michigan Act 524 of the Public Acts of 1980.

END OF SECTION

# **REQUIRED STANDARD CONTRACT LANGUAGE: CLEAN WATER STATE REVOLVING FUND AND DRINKING WATER REVOLVING FUND**

- **Davis-Bacon/Prevailing Federal Wages, Including Labor Standards Provisions**
- **Disadvantaged Business Enterprise (DBE) Requirements\***
- **Debarment/Suspension Certification\***

**\* Bidders should note these sections contain instructions regarding forms/information that must be completed/included with any submitted bid.**

## **Davis-Bacon/Prevailing Federal Wage Rates**

P.L. 111-88 requires compliance with the Davis Bacon Act and adherence to the current U.S. Department of Labor Wage Decision. Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Contract Documents (see Wage Decision included herein) must be paid on this project. The Wage Decision, including modifications, must be posted by the Contractor on the job site. A copy of the Federal Labor Standards Provisions is included and is hereby a part of this contract.

Michigan Wages Highway Construction  
General Decision Number: MI 190001 03/08/2019 MI 1

Superseded General Decision Number: MI 20180001

State: Michigan

Construction Types: Highway (Highway, Airport & Bridge xxxxx  
and Sewer/Incld. to Hwy.)

Counties: Michigan Statewide.

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/04/2019
1	01/25/2019
2	03/08/2019

CARP0004-004 06/01/2018

REMAINDER OF STATE

	Rates	Fringes
CARPENTER (Piledriver).....	\$ 27.12	20.19
-----		
CARP0004-005 06/01/2018		

LIVINGSTON (Townships of Brighton, Deerfield, Genoa, Hartland, Oceola & Tyrone), MACOMB, MONROE, OAKLAND, SANILAC, ST. CLAIR AND WAYNE COUNTIES

	Rates	Fringes
CARPENTER (Piledriver).....	\$ 30.50	27.28
-----		
ELEC0017-005 06/04/2018		

# Michigan Wages Highway Construction

## STATEWIDE

	Rates	Fringes
Line Construction		
Groundman/Driver.....	\$ 28.33	6.45+29%
Journeyman Signal Tech, Communications Tech, Tower Tech & Fiber Optic Splicers.	\$ 39.31	6.45+29%
Journeyman Specialist.....	\$ 45.21	6.45+29%
Operator A.....	\$ 33.22	6.45+29%
Operator B.....	\$ 31.02	6.45+29%

## Classifications

Journeyman Specialist: Refers to a crew of only one person working alone.

Operator A: Shall be proficient in operating all power equipment including: Backhoe, Excavator, Directional Bore and Boom/Digger truck.

Operator B: Shall be proficient in operating any 2 of the above mentioned pieces of equipment listed under Operator A.

-----  
ENGI 0324-003 06/01/2018

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		
GROUP 1.....	\$ 45.37	23.85
GROUP 2.....	\$ 46.37	23.85
GROUP 3.....	\$ 43.87	23.85
GROUP 4.....	\$ 44.87	23.85
GROUP 5.....	\$ 42.37	23.85
GROUP 6.....	\$ 43.37	23.85
GROUP 7.....	\$ 42.10	23.85
GROUP 8.....	\$ 43.10	23.85
GROUP 9.....	\$ 41.65	23.85
GROUP 10.....	\$ 42.65	23.85
GROUP 11.....	\$ 40.92	23.85
GROUP 12.....	\$ 41.92	23.85
GROUP 13.....	\$ 40.56	23.85
GROUP 14.....	\$ 41.56	23.85
GROUP 15.....	\$ 39.92	23.85
GROUP 16.....	\$ 37.82	23.85
GROUP 17.....	\$ 23.64	11.00
GROUP 18.....	\$ 27.08	11.00

## FOOTNOTE:

Paid Holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

## Michigan Wages Highway Construction

### POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Engineer when operating combination of boom and jib 400' or longer

GROUP 2: Engineer when operating combination of boom and jib 400' or longer on a crane that requires an oiler

GROUP 3: Engineer when operating combination of boom and jib 300' or longer

GROUP 4: Engineer when operating combination of boom and jib 300' or longer on a crane that requires an oiler

GROUP 5: Engineer when operating combination of boom and jib 220' or longer

GROUP 6: Engineer when operating combination of boom and jib 220' or longer on a crane that requires an oiler

GROUP 7: Engineer when operating combination of boom and jib 140' or longer

GROUP 8: Engineer when operating combination of boom and jib 140' or longer on a crane that requires an oiler

GROUP 9: Tower crane & derrick operator (where operator's work station is 50 ft. or more above first sub-level)

GROUP 10: Tower crane & derrick operator (where operator's work station is 50 ft. or more above first sub-level) on a crane that requires an oiler

GROUP 11: Engineer when operating combination of boom and jib 120' or longer

GROUP 12: Engineer when operating combination of boom and jib 120' or longer on a crane that requires an oiler

GROUP 13: Crane operator; job mechanic and 3 drum hoist and excavator

GROUP 14: Crane operator on a crane that requires an oiler

GROUP 15: Hoisting operator; 2 drum hoist and rubber tired backhoe

GROUP 16: Forklift and 1 drum hoist

GROUP 17: Compressor or welder operator

GROUP 18: Oiler

-----  
ENGI 0324-004 06/01/2018

AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN

AREA 2: ANTRIM, BENZIE, CHARLEVOIX, EMMET, GRAND TRAVERSE,  
Page 3



Michigan Wages Highway Construction  
KALKASKA, LEELANAU, MISSAUKEE AND WEXFORD COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		
AREA 1		
GROUP 1.....	\$ 45.37	23.85
GROUP 2.....	\$ 42.10	23.85
GROUP 3.....	\$ 40.56	23.85
GROUP 4.....	\$ 37.82	23.85
GROUP 5.....	\$ 23.64	11.00
GROUP 6.....	\$ 27.08	11.00
AREA 2		
GROUP 1.....	\$ 45.37	23.85
GROUP 2.....	\$ 42.10	23.85
GROUP 3.....	\$ 40.56	23.85
GROUP 4.....	\$ 37.82	23.85
GROUP 5.....	\$ 23.64	11.00
GROUP 6.....	\$ 27.08	11.00

FOOTNOTES:

Crane operator with main boom and jib 300' or longer: \$1.50 additional to the group 1 rate. Crane operator with main boom and jib 400' or longer: \$3.00 additional to the group 1 rate.

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1: Crane Operator with main boom & jib 400', 300', or 220' or longer.

GROUP 2: Crane Operator with main boom & jib 140' or longer, Tower Crane; Gantry Crane; Whirley Derrick.

GROUP 3: Regular Equipment Operator, Crane, Dozer, Loader, Hoist, Straddle Wagon, Mechanic, Grader and Hydro Excavator.

GROUP 4: Air Tugger (single drum), Material Hoist Pump 6" or over, Elevators, Brokk Concrete Breaker.

GROUP 5: Air Compressor, Welder, Generators, Conveyors

GROUP 6: Oilier and fire tender

-----  
ENGI 0324-005 09/01/2018

AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KWEENAW, LAKE, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE,

Michigan Wages Highway Construction  
MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW,  
ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE,  
ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST.  
JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fri nges
OPERATOR: Power Equipment (Underground construction (including sewer))		
AREA 1:		
GROUP 1.....	\$ 32.53	23.85
GROUP 2.....	\$ 27.80	23.85
GROUP 3.....	\$ 27.07	23.85
GROUP 4.....	\$ 26.50	23.85
AREA 2:		
GROUP 1.....	\$ 30.82	23.85
GROUP 2.....	\$ 25.93	23.85
GROUP 3.....	\$ 25.43	23.85
GROUP 4.....	\$ 25.15	23.85

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backfiller tamper; Backhoe; Batch plant operator (concrete); Clamshell; Concrete paver (2 drums or larger); Conveyor loader (Euclid type); Crane (crawler, truck type or pile driving); Dozer; Dragline; Elevating grader; Endloader; Gradall (and similar type machine); Grader; Mechanic; Power shovel; Roller (asphalt); Scraper (self-propelled or tractor drawn); Side boom tractor (type D-4 or equivalent and larger); Slip form paver; Slope paver; Trencher (over 8 ft. digging capacity); Well drilling rig; Concrete pump with boom operator; Hydro Excavator

GROUP 2: Boom truck (power swing type boom); Crusher; Hoist; Pump (1 or more - 6-in. discharge or larger - gas or diesel - powered or powered by generator of 300 amperes or more - inclusive of generator); Side boom tractor (smaller than type D-4 or equivalent); Tractor (pneu-tired, other than backhoe or front end loader); Trencher (8-ft. digging capacity and smaller); Vac Truck

GROUP 3: Air compressors (600 cfm or larger); Air compressors (2 or more-less than 600 cfm); Boom truck (non-swinging, non-powered type boom); Concrete breaker (self-propelled or truck mounted - includes compressor); Concrete paver (1 drum-1/2 yd. or larger); Elevator (other than passenger); Maintenance person; Pump (2 or more-4-in. up to 6-in. discharge-gas or diesel powered - excluding submersible pumps); Pumpcrete machine (and similar equipment); Wagon drill (multiple); Welding machine or generator (2 or more-300 amp. or larger - gas or diesel powered)

GROUP 4: Boiler; Concrete saw (40 hp or over); Curing machine (self-propelled); Farm tractor (with attachment); Finishing machine (concrete); Fire person; Hydraulic pipe pushing machine; Mulching equipment; Oiler; Pumps (2 or more up to 4-in. discharge, if used 3 hours or more a day, gas or diesel powered - excluding submersible pumps); Roller (other than asphalt); Stump remover; Trencher (service); Vibrating compaction equipment, self-propelled (6 ft. wide

Michigan Wages Highway Construction  
 or over); End dump operator; Sweeper (Wayne type); Water  
 wagon and Extend-a boom forklift

-----  
 ENGI 0324-006 06/01/2018

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE  
 COUNTIES

AREA 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA,  
 BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,  
 CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,  
 DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE,  
 GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO,  
 IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW,  
 LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC,  
 MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND,  
 MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA,  
 OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE  
 ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC,  
 SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

Rates

Fringes

Power equipment operators:  
 (AIRPORT, BRIDGE & HIGHWAY  
 CONSTRUCTION)

AREA 1

GROUP 1.....	\$ 33.36	23.90
GROUP 2.....	\$ 26.63	23.90
GROUP 3.....	\$ 27.93	23.90
GROUP 4.....	\$ 25.90	23.90
GROUP 5.....	\$ 20.70	11.00

AREA 2

GROUP 1.....	\$ 33.36	23.90
GROUP 2.....	\$ 26.63	23.90
GROUP 3.....	\$ 27.93	23.90
GROUP 4.....	\$ 25.90	23.90
GROUP 5.....	\$ 20.70	11.00

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Asphalt plant operator; Crane operator (does not  
 include work on bridge construction on projects when the crane  
 operator is erecting structural components); Dragline  
 operator; Shovel operator; Locomotive operator; Paver  
 operator (5 bags or more); Elevating grader operator; Pile  
 driving operator; Roller operator (asphalt); Blade grader  
 operator; Trenching machine operator (ladder or wheel  
 type); Auto-grader; Slip form paver; Self-propelled or  
 tractor-drawn scraper; Conveyor loader operator (Euclid  
 type); Endloader operator (1 yd. capacity and over);  
 Bulldozer; Hoisting engineer; Tractor operator; Finishing  
 machine operator (asphalt); Mechanic; Pump operator (6-in.  
 discharge or over, gas, diesel powered or generator of 300  
 amp. or larger); Shouldering or gravel distributing machine  
 operator (self-propelled); Backhoe (with over 3/8 yd.  
 bucket); Side boom tractor (type D-4 or equivalent or  
 larger); Tube finisher (slip form paving); Gradall (and  
 similar type machine); Asphalt paver (self-propelled);  
 Asphalt planer (self-propelled); Batch plant  
 (concrete-central mix); Slurry machine (asphalt); Concrete  
 pump (3 in. and over); Roto-mill; Swinging boom truck (over

Michigan Wages Highway Construction  
 12 ton capacity); Hydro demolisher (water blaster);  
 Farm-type tractor with attached pan

GROUP 2: Screening plant operator; Washing plant operator;  
 Crusher operator; Backhoe (with 3/8 yd. bucket or less);  
 Side boom tractor (smaller than D-4 type or equivalent);  
 Sweeper (Wayne type and similar equipment); Vacuum truck  
 operator; Batch plant (concrete dry batch)

GROUP 3: Grease Truck

GROUP 4: Air compressor operator (600 cu. ft. per min or  
 more); Air compressor operator (two or more, less than 600  
 cfm); Wagon drill operator; Concrete breaker; Tractor  
 operator (farm type with attachment)

GROUP 5: Boiler fire tender; Oiler; Fire tender; Trencher  
 (service); Flexplane operator; Cleftplane operator; Grader  
 operator (self-propelled fine-grade or form (concrete));  
 Finishing machine operator (concrete); Boom or winch hoist  
 truck operator; Endloader operator (under 1 yd. capacity);  
 Roller operator (other than asphalt); Curing equipment  
 operator (self-propelled); Concrete saw operator (40 h. p.  
 or over); Power bin operator; Plant drier operator  
 (asphalt); Vibratory compaction equipment operator (6 ft.  
 wide or over); Guard post driver operator (power driven);  
 All mulching equipment; Stump remover; Concrete pump (under  
 3-in.); Mesh installer (self-propelled); Tractor operator  
 (farm type); End dump; Skid steer

-----  
 ENGI 0324-007 05/01/2018

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON,  
 IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON  
 AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment (Steel Erection)		
Compressor, welder and forklift.....	\$ 29.58	23.60
Crane operator, main boom & jib 120' or longer.....	\$ 35.57	23.60
Crane operator, main boom & jib 140' or longer.....	\$ 35.85	23.60
Crane operator, main boom & jib 220' or longer.....	\$ 36.39	23.60
Mechanic with truck and tools.....	\$ 34.76	23.60
Oiler and fireman.....	\$ 28.16	23.60
Regular operator.....	\$ 33.12	23.60

-----  
 ENGI 0324-008 10/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY,  
 BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,  
 CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,  
 DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND  
 TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA,  
 IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT,

Michigan Wages Highway Construction  
 KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE,  
 MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA,  
 MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE,  
 MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA,  
 OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST.  
 CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA,  
 VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
OPERATOR: Power Equipment (Sewer Relining)		
GROUP 1.....	\$ 30.70	12.93
GROUP 2.....	\$ 29.17	12.93

#### SEWER RELINING CLASSIFICATIONS

GROUP 1: Operation of audio-visual closed circuit TV system, including remote in-ground cutter and other equipment used in connection with the CCTV system

GROUP 2: Operation of hot water heaters and circulation systems, water jetters and vacuum and mechanical debris removal systems

-----  
 ENGI 0325-012 05/01/2018

	Rates	Fringes
Power equipment operators - gas distribution and duct installation work:		
GROUP 1.....	\$ 30.68	23.85
GROUP 2.....	\$ 30.56	23.85
GROUP 3.....	\$ 28.85	23.85

SCOPE OF WORK: The construction, installation, treating and reconditioning of pipelines transporting gas vapors within cities, towns, subdivisions, suburban areas, or within private property boundaries, up to and including private meter settings of private industrial, governmental or other premises, more commonly referred to as "distribution work," starting from the first metering station, connection, similar or related facility, of the main or cross country pipeline and including duct installation.

Group 1: Backhoe, crane, grader, mechanic, dozer (D-6 equivalent or larger), side boom (D-4 equivalent or larger), trencher(except service), endloader (2 yd. capacity or greater).

GROUP 2: Dozer (less than D-6 equivalent), endloader (under 2 yd. capacity), side boom (under D-4 capacity), backfiller, pumps (1 or 2 of 6-inch discharge or greater), boom truck (with powered boom), tractor (wheel type other than backhoe or front endloader). Tamper (self-propelled), boom truck (with non-powered boom), concrete saw (20 hp or larger), pumps (2 to 4 under 6-inch discharge), compressor (2 or more or when one is used continuously into the second day) and trencher(service).

Michigan Wages Highway Construction  
 GROUP 3: Oil er, hydraulic pipe pushing machine, grease  
 person and hydrostatic testing operator.

\* IRON0008-007 06/01/2018

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON,  
 IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON  
 AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
Ironworker - pre-engineered metal building erector.....	\$ 23.70	6.95
IRONWORKER		
General contracts		
\$10,000,000 or greater.....	\$ 30.92	26.97
General contracts less		
than \$10,000,000.....	\$ 30.92	26.97

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor  
 Day, Thanksgiving Day & Christmas Day.

IRON0025-002 06/01/2018

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON,  
 CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO,  
 ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND,  
 MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE,  
 ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA,  
 WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
Ironworker - pre-engineered metal building erector		
Alcona, Alpena, Arenac, Cheboygan, Clare, Clinton, Crawford, Gladwin, Gratiot, Huron, Ingham, Iosco, Isabella, Jackson, Lapeer, Livingston (west of Burkhardt Road), Montmorency, Ogemaw, Oscoda, Otsego, Presque Isle, Roscommon, Sanilac, Shiawassee, Tuscola & Washtenaw (west of U. S. 23).	\$ 24.26	22.11
Bay, Genesee, Lapeer, Livingston (east of Burkhardt Road), Macomb, Midland, Oakland, Saginaw, St. Clair, The University of Michigan, Washtenaw (east of U. S. 23) & Wayne...	\$ 25.48	23.11
IRONWORKER		
Ornamental and Structural...	\$ 35.52	28.65
Reinforcing.....	\$ 29.48	27.74

\* IRON0055-005 07/01/2018

# Michigan Wages Highway Construction

## LENAWEE AND MONROE COUNTIES:

	Rates	Fringes
IRONWORKER		
Pre-engineered metal building	\$ 23.59	19.35
All other work	\$ 30.13	23.25

\* IRON0292-003 06/01/2018

## BERRIEN AND CASS COUNTIES:

	Rates	Fringes
IRONWORKER (Including pre-engineered metal building erector)	\$ 29.75	22.01

IRON0340-001 06/19/2017

ALLEGAN, ANTRIM, BARRY, BENZIE, BRANCH, CALHOUN, CHARLEVOIX, EATON, EMMET, GRAND TRAVERSE, HILLSDALE, IONIA, KALAMAZOO, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN AND WEXFORD COUNTIES:

	Rates	Fringes
IRONWORKER (Including pre-engineered metal building erector)	\$ 24.43	24.67

LAB00005-006 10/01/2017

	Rates	Fringes
Laborers - hazardous waste abatement: (ALCONA, ALPENA, ANTRIM, BENZIE, CHARLEVOIX, CHEBOYGAN, CRAWFORD, EMMET, GRAND TRAVERSE, IOSCO, KALKASKA, LEELANAU, MISSAUKEE, MONTMORENCY, OSCODA, OTSEGO, PRESQUE ISLE AND WEXFORD COUNTIES - Zone 10)		
Levels A, B or C	\$ 17.45	12.75
class b	\$ 18.00	12.85
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D	\$ 16.45	12.75
class a	\$ 17.00	12.85

Zone 10

Laborers - hazardous waste abatement: (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON,

# Michigan Wages Highway Construction

KEWEENAW, LUCE, MACKINAC,  
MARQUETTE, MENOMINEE,  
ONTONAGON AND SCHOOLCRAFT  
COUNTIES - Zone 11)

Levels A, B or C.....\$ 21.63 12.88

Work performed in  
conjunction with site  
preparation not requiring  
the use of personal  
protective equipment;

Also, Level D.....\$ 20.63 12.88

Laborers - hazardous waste  
abatement: (ALLEGAN, BARRY,  
BERRIEN, BRANCH, CALHOUN,  
CASS, IONIA COUNTY (except  
the city of Portland);  
KALAMAZOO, KENT, LAKE,  
MANISTEE, MASON, MECOSTA,  
MONTCALM, MUSKEGON, NEWAYGO,  
OCEANA, OSCEOLA, OTTAWA, ST.  
JOSEPH AND VAN BUREN COUNTIES  
- Zone 9)

Levels A, B or C.....\$ 20.95 12.85

Work performed in  
conjunction with site  
preparation not requiring  
the use of personal  
protective equipment;

Also, Level D.....\$ 19.95 12.85

Laborers - hazardous waste  
abatement: (ARENAC, BAY,  
CLARE, GLADWIN, GRATIOT,  
HURON, ISABELLA, MIDLAND,  
OGEMAW, ROSCOMMON, SAGINAW  
AND TUSCOLA COUNTIES - Zone 8)

Levels A, B or C.....\$ 20.65 12.85

Work performed in  
conjunction with site  
preparation not requiring  
the use of personal  
protective equipment;

Also, Level D.....\$ 19.65 12.85

Laborers - hazardous waste  
abatement: (CLINTON, EATON  
AND INGHAM COUNTIES; IONIA  
COUNTY (City of Portland);  
LIVINGSTON COUNTY (west of  
Oak Grove Rd., including the  
City of Howell) - Zone 6)

Levels A, B or C.....\$ 24.65 12.85

Work performed in  
conjunction with site  
preparation not requiring  
the use of personal  
protective equipment;

Also, Level D.....\$ 23.65 12.85

Laborers - hazardous waste  
abatement: (GENESEE, LAPEER  
AND SHIAWASSEE COUNTIES -  
Zone 7)

Levels A, B or C.....\$ 23.61 13.41

Work performed in  
conjunction with site



Michigan Wages Highway Construction		
preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 22.61	13.41
Laborers - hazardous waste abatement: (HILLSDALE, JACKSON AND LENAWEE COUNTIES - Zone 4)		
Levels A, B or C.....	\$ 24.19	12.85
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 23.19	12.85
Laborers - hazardous waste abatement: (LIVINGSTON COUNTY (east of Oak Grove Rd. and south of M-59, excluding the city of Howell); AND WASHTENAW COUNTY - Zone 3)		
Levels A, B or C.....	\$ 29.70	14.20
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 28.70	14.20
Laborers - hazardous waste abatement: (MACOMB AND WAYNE COUNTIES - Zone 1)		
Levels A, B or C.....	\$ 28.35	16.75
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 27.35	16.75
Laborers - hazardous waste abatement: (MONROE COUNTY - Zone 4)		
Levels A, B or C.....	\$ 30.85	14.45
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 29.84	14.45
Laborers - hazardous waste abatement: (OAKLAND COUNTY and the Northeast portion of LIVINGSTON COUNTY bordered by Oak Grove Road on the West and M-59 on the South - Zone 2)		
Level A, B, C.....	\$ 28.85	16.75
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 27.85	16.75
Laborers - hazardous waste		

Michigan Wages Highway Construction  
 abatement: (SANILAC AND ST.  
 CLAIR COUNTIES - Zone 5)

Levels A, B or C.....	\$ 25.19	15.86
Work performed in conjunction with site preparation not requiring the use of personal protective equipment;		
Also, Level D.....	\$ 24.19	15.86

-----  
 LAB00259-001 09/01/2018

AREA 1: MACOMB, OAKLAND AND WAYNE COUNTIES  
 AREA 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA,  
 BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,  
 CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,  
 DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND  
 TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA,  
 IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT,  
 KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE,  
 MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE,  
 MIDLAND, MISSAUKEE, MONROE, MONTCALM, MONTMORENCY, MUSKEGON,  
 NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO,  
 OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST.  
 JOSEPH, SANILAC, SCHOOLCRAFT, SHIawassee, TUSCOLA, VAN BUREN,  
 WASHTENAW AND WEXFORD COUNTIES

	Rates	Fringes
Laborers - tunnel, shaft and caisson:		
AREA 1		
GROUP 1.....	\$ 22.57	16.80
GROUP 2.....	\$ 22.68	16.80
GROUP 3.....	\$ 22.74	16.80
GROUP 4.....	\$ 22.92	16.80
GROUP 5.....	\$ 23.17	16.80
GROUP 6.....	\$ 23.50	16.80
GROUP 7.....	\$ 16.78	16.80
AREA 2		
GROUP 1.....	\$ 24.10	12.85
GROUP 2.....	\$ 24.19	12.85
GROUP 3.....	\$ 24.29	12.85
GROUP 4.....	\$ 24.45	12.85
GROUP 5.....	\$ 24.71	12.85
GROUP 6.....	\$ 25.02	12.85
GROUP 7.....	\$ 17.29	12.85

SCOPE OF WORK: Tunnel, shaft and caisson work of every type  
 and description and all operations incidental thereto,  
 including, but not limited to, shafts and tunnels for  
 sewers, water, subways, transportation, diversion,  
 sewerage, caverns, shelters, aquifers, reservoirs, missile  
 silos and steel sheeting for underground construction.

#### TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Tunnel, shaft and caisson laborer, dump, shanty, hog  
 house tender, testing (on gas) and watchman

GROUP 2: Manhole, headwall, catch basin builder, bricklayer  
 tender, mortar machine and material mixer

## Michigan Wages Highway Construction

GROUP 3: Air tool operator (jackhammer, bush hammer and grinder), first bottom, second bottom, cage tender, car pusher, carrier, concrete, concrete form, concrete repair, cement invert laborer, cement finisher, concrete shoveler, conveyor, floor, gasoline and electric tool operator, gunite, grout operator, welder, heading dinky person, inside lock tender, pea gravel operator, pump, outside lock tender, scaffold, top signal person, switch person, track, tugger, utility person, vibrator, winch operator, pipe jacking, wagon drill and air track operator and concrete saw operator (under 40 h.p.)

GROUP 4: Tunnel, shaft and caisson mucker, bracer, liner plate, long haul dinky driver and well point

GROUP 5: Tunnel, shaft and caisson miner, drill runner, key board operator, power knife operator, reinforced steel or mesh (e.g. wire mesh, steel mats, dowel bars, etc.)

GROUP 6: Dynamite and powder

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

-----  
LAB00334-001 09/01/2018

	Rates	Fringes
Laborers - open cut:		
ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES:		
GROUP 1.....	\$ 22.42	16.80
GROUP 2.....	\$ 22.53	16.80
GROUP 3.....	\$ 22.58	16.80
GROUP 4.....	\$ 22.66	16.80
GROUP 5.....	\$ 22.72	16.80
GROUP 6.....	\$ 20.17	16.80
GROUP 7.....	\$ 16.79	16.80
ZONE 2 - LIVINGSTON COUNTY (east of M-151 (Oak Grove Rd.)); MONROE AND WASHTENAW COUNTIES:		
GROUP 1.....	\$ 23.75	12.85
GROUP 2.....	\$ 23.86	12.85
GROUP 3.....	\$ 23.98	12.85
GROUP 4.....	\$ 24.05	12.85
GROUP 5.....	\$ 24.20	12.85
GROUP 6.....	\$ 21.50	12.85
GROUP 7.....	\$ 18.14	12.85
ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (City of Portland); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (west of M-151 Oak Grove Rd.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES:		

# Michigan Wages Highway Construction

GROUP 1.....	\$ 21.94	12.85
GROUP 2.....	\$ 22.08	12.85
GROUP 3.....	\$ 22.20	12.85
GROUP 4.....	\$ 22.25	12.85
GROUP 5.....	\$ 22.39	12.85
GROUP 6.....	\$ 19.69	12.85
GROUP 7.....	\$ 16.84	12.85
ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES:		
GROUP 1.....	\$ 20.97	12.85
GROUP 2.....	\$ 21.10	12.85
GROUP 3.....	\$ 21.21	12.85
GROUP 4.....	\$ 21.28	12.85
GROUP 5.....	\$ 21.40	12.85
GROUP 6.....	\$ 18.62	12.85
GROUP 7.....	\$ 16.96	12.85
ZONE 5 - ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:		
GROUP 1.....	\$ 21.19	12.85
GROUP 2.....	\$ 21.33	12.85
GROUP 3.....	\$ 21.46	12.85
GROUP 4.....	\$ 21.51	12.85
GROUP 5.....	\$ 21.56	12.85
GROUP 6.....	\$ 18.94	12.85
GROUP 7.....	\$ 17.05	12.85

## SCOPE OF WORK:

Open cut construction work shall be construed to mean work which requires the excavation of earth including industrial, commercial and residential building site excavation and preparation, land balancing, demolition and removal of concrete and underground appurtenances, grading, paving, sewers, utilities and improvements; retention, oxidation, flocculation and irrigation facilities, and also

Michigan Wages Highway Construction including but not limited to underground piping, conduits, steel sheeting for underground construction, and all work incidental thereto, and general excavation. For all areas except the Upper Peninsula, open cut construction work shall also be construed to mean waterfront work, piers, docks, seawalls, breakwalls, marinas and all incidental work. Open cut construction work shall not include any structural modifications, alterations, additions and repairs to buildings, or highway work, including roads, streets, bridge construction and parking lots or steel erection work and excavation for the building itself and back filling inside of and within 5 ft. of the building and foundations, footings and piers for the building. Open cut construction work shall not include any work covered under Tunnel, Shaft and Caisson work.

#### OPEN CUT LABORER CLASSIFICATIONS

##### GROUP 1: Construction Laborer

GROUP 2: Mortar and material mixer, concrete form person, signal person, well point person, manhole, headwall and catch basin builder, headwall, seawall, breakwall and dock builder

GROUP 3: Air, gasoline and electric tool operator, vibrator operator, driller, pump person, tar kettle operator, bracer, rodder, reinforced steel or mesh person (e.g., wire mesh, steel mats, dowel bars, etc.), welder, pipe jacking and boring person, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger person and directional boring person

##### GROUP 4: Trench or excavating grade person

GROUP 5: Pipe layer (including crock, metal pipe, multi-plate or other conduits)

GROUP 6: Grouting man, audio-visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work and the installation and repair of water service pipe and appurtenances

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

-----  
LAB00465-001 06/01/2018

LABORER: Highway, Bridge and Airport Construction

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA AND VAN BUREN COUNTIES

# Michigan Wages Highway Construction

AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON AND WEXFORD COUNTIES

AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES

	Rates	Fringes
LABORER (AREA 1)		
GROUP 1.....	\$ 26.12	12.85
GROUP 2.....	\$ 26.25	12.85
GROUP 3.....	\$ 26.43	12.85
GROUP 4.....	\$ 26.51	12.85
GROUP 5.....	\$ 26.72	12.85
GROUP 6.....	\$ 27.02	12.85
LABORER (AREA 2)		
GROUP 1.....	\$ 24.02	12.85
GROUP 2.....	\$ 24.22	12.85
GROUP 3.....	\$ 24.46	12.85
GROUP 4.....	\$ 24.81	12.85
GROUP 5.....	\$ 24.68	12.85
GROUP 6.....	\$ 25.02	12.85
LABORER (AREA 3)		
GROUP 1.....	\$ 23.27	12.85
GROUP 2.....	\$ 23.48	12.85
GROUP 3.....	\$ 23.77	12.85
GROUP 4.....	\$ 24.21	12.85
GROUP 5.....	\$ 23.83	12.85
GROUP 6.....	\$ 24.26	12.85
LABORER (AREA 4)		
GROUP 1.....	\$ 23.32	12.85
GROUP 2.....	\$ 23.53	12.85
GROUP 3.....	\$ 23.82	12.85
GROUP 4.....	\$ 24.26	12.85
GROUP 5.....	\$ 23.88	12.85
GROUP 6.....	\$ 24.31	12.85

## LABORER CLASSIFICATIONS

GROUP 1: Asphalt shoveler or loader; asphalt plant misc.; burlap person; yard person; dumper (wagon, truck, etc.); joint filling laborer; miscellaneous laborer; unskilled laborer; sprinkler laborer; form setting laborer; form stripper; pavement reinforcing; handling and placing (e.g., wire mesh, steel mats, dowel bars); mason's tender or bricklayer's tender on manholes; manhole builder; headwalls, etc.; waterproofing, (other than buildings) seal coating and slurry mix, shoring, underpinning; pressure grouting; bridge pin and hanger removal; material recycling laborer; horizontal paver laborer (brick, concrete, clay, stone and asphalt); ground stabilization and modification laborer; grouting; waterblasting; top person; railroad track and trestle laborer; carpenters' tender; guard rail builders' tender; earth retention barrier and wall and M.S.E. wall installer's tender; highway and median installer's tender (including sound, retaining, and crash barriers); fence erector's tender; asphalt raker tender;

Michigan Wages Highway Construction  
sign installer; remote control operated equipment.

GROUP 2: Mixer operator (less than 5 sacks); air or electric tool operator (jackhammer, etc.); spreader; boxperson (asphalt, stone, gravel); concrete paddler; power chain saw operator; paving batch truck dumper; tunnel mucker (highway work only); concrete saw (under 40 h.p.) and dry pack machine; roto-mill grounds person.

GROUP 3: Tunnel miner (highway work only); finishers tenders; guard rail builders; highway and median barrier installer; earth retention barrier and wall and M.S.E. wall installer's (including sound, retaining and crash barriers); fence erector; bottom person; powder person; wagon drill and air track operator; diamond and core drills; grade checker; certified welders; curb and side rail setter's tender.

GROUP 4: Asphalt raker

GROUP 5: Pipe layers, oxy-gun

GROUP 6: Line-form setter for curb or pavement; asphalt screed checker/screw man on asphalt paving machines.

-----  
LAB01076-005 04/01/2018

MI CH I G A N   S T A T E W I D E

	Rates	Fringes
LABORER (DI STR I B U T I O N   W O R K)		
Zone 1.....	\$ 20.27	12.85
Zone 2.....	\$ 18.59	12.85
Zone 3.....	\$ 16.76	12.85
Zone 4.....	\$ 16.12	12.85
Zone 5.....	\$ 16.12	12.85

DI STR I B U T I O N   W O R K - The construction, installation, treating and reconditioning of distribution pipelines transporting coal, oil, gas or other similar materials, vapors or liquids, including pipelines within private property boundaries, up to and including the meter settings on residential, commercial, industrial, institutional, private and public structures. All work covering pumping stations and tank farms not covered by the Building Trades Agreement. Other distribution lines with the exception of sewer, water and cable television are included.

Underground Duct Layer Pay: \$.40 per hour above the base pay rate.

Zone 1 - Macomb, Oakland and Wayne

Zone 2 - Monroe and Washtenaw

Zone 3 - Bay, Genesee, Lapeer, Midland, Saginaw, Sanilac, Shiawassee and St. Clair

Zone 4 - Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon and Schoolcraft

Zone 5 - Remaining Counties in Michigan

Michigan Wages Highway Construction

PAI N0022-002 07/01/2008

HILLSDALE, JACKSON AND LENAWEE COUNTIES; LIVINGSTON COUNTY (east of the eastern city limits of Howell, not including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
PAINTER.....	\$ 25.06	14.75

FOOTNOTES: For all spray work and journeyman rigging for spray work, also blowing off, \$0.80 per hour additional (applies only to workers doing rigging for spray work on off the floor work. Does not include setting up or moving rigging on floor surfaces, nor does it apply to workers engaged in covering up or tending spray equipment. For all sandblasting and spray work performed on highway bridges, overpasses, tanks or steel, \$0.80 per hour additional. For all brushing, cleaning and other preparatory work (other than spraying or steeplejack work) at scaffold heights of fifty (50) feet from the ground or higher, \$0.50 per hour additional. For all preparatorial work and painting performed on open steel under forty (40) feet when no scaffolding is involved, \$0.50 per hour additional. For all swing stage work-window jacks and window belts-exterior and interior, \$0.50 per hour additional. For all spray work and sandblaster work to a scaffold height of forty (40) feet above the floor level, \$0.80 per hour additional. For all preparatorial work and painting on all highway bridges or overpasses up to forty (40) feet in height, \$0.50 per hour additional. For all steeplejack work performed where the elevation is forty (40) feet or more, \$1.25 per hour additional.

-----  
PAI N0312-001 06/01/2018

EXCLUDES: ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); INCLUDES: Barry, Berrien, Branch, Calhoun, Cass, Hillsdale, Kalamazoo, St. Joseph, Van Buren

	Rates	Fringes
PAINTER		
Brush and roller.....	\$ 23.74	13.35
Spray, Sandblast, Sign		
Painting.....	\$ 24.94	13.35

-----  
PAI N0845-003 05/10/2018

CLINTON COUNTY; EATON COUNTY (does not include the townships of Bellevue and Olivet); INGHAM COUNTY; IONIA COUNTY (east of Hwy. M 66); LIVINGSTON COUNTY (west of the eastern city limits of Howell, including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); AND SHIAWASSEE COUNTY (Townships of Bennington, Laingsbury and Perry):



# Michigan Wages Highway Construction

	Rates	Fringes
PAINTER.....	\$ 25.49	13.74

-----  
 PAIN0845-015 05/10/2018

MUSKEGON COUNTY; NEWAYGO COUNTY (except the Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OCEANA COUNTY; OTTAWA COUNTY (except the townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

	Rates	Fringes
PAINTER.....	\$ 25.49	13.74

-----  
 PAIN0845-018 05/10/2018

ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); IONIA COUNTY (west of Hwy. M-66); KENT, MECOSTA AND MONTCALM COUNTIES; NEWAYGO COUNTY (Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OSCEOLA COUNTY (south of Hwy. #10); OTTAWA COUNTY (Townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

	Rates	Fringes
PAINTER.....	\$ 25.49	13.74

FOOTNOTES: Lead abatement work: \$1.00 per hour additional.

-----  
 PAIN1011-003 06/03/2018

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
PAINTER.....	\$ 25.31	12.78

FOOTNOTES: High pay (bridges, overpasses, watertower): 30 to 80 ft.: \$.65 per hour additional. 80 ft. and over: \$1.30 per hour additional.

-----  
 PAIN1474-002 06/01/2010

HURON COUNTY; LAPEER COUNTY (east of Hwy. M-53); ST. CLAIR, SANILAC AND TUSCOLA COUNTIES:

	Rates	Fringes
--	-------	---------

Michigan Wages Highway Construction

PAINTER..... \$ 23.79 12.02

FOOTNOTES: Lead abatement work: \$1.00 per hour additional.  
Work with any hazardous material: \$1.00 per hour additional.  
Sandblasting, steam cleaning and acid cleaning: \$1.00 per hour additional.  
Ladder work at or above 40 ft., scaffold work at or above 40 ft., swing stage, boatswain chair, window jacks and all work performed over a falling height of 40 ft.: \$1.00 per hour additional.  
Spray gun work, pick pullers and those handling needles, blowing off by air pressure, and any person rigging (setting up and moving off the ground): \$1.00 per hour additional.  
Steeplejack, tanks, gas holders, stacks, flag poles, radio towers and beacons, power line towers, bridges, etc.: \$1.00 per hour additional, paid from the ground up.

-----  
PAIN1803-003 06/01/2018

ALCONA, ALPENA, ANTRIM, ARENAC, BAY, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT, IOSCO, ISABELLA, KALKASKA, LAKE, LEELANAU, MANISTEE, MASON, MIDLAND, MISSAUKEE, MONTMORENCY AND OGEMAW COUNTIES; OSCEOLA COUNTY (north of Hwy. #10); OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW AND WEXFORD COUNTIES:

Rates Finges

PAINTER

Work performed on water, bridges over water or moving traffic, radio and powerline towers, elevated tanks, steeples, smoke stacks over 40 ft. of falling heights, recovery of lead-based paints and any work associated with industrial plants, except maintenance of industrial

plants..... \$ 24.92 14.68

All other work, including maintenance of industrial plant..... \$ 24.92 14.68

FOOTNOTES: Spray painting, sandblasting, blowdown associated with spraying and blasting, water blasting and work involving a swing stage, boatswain chair or spider: \$1.00 per hour additional.  
All work performed inside tanks, vessels, tank trailers, railroad cars, sewers, smoke stacks, boilers or other spaces having limited egress not including buildings, opentop tanks, pits, etc.: \$1.25 per hour additional.

-----  
PLAS0514-001 06/01/2018

ZONE 1: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, SAGINAW, WASHTENAW AND WAYNE COUNTIES

ZONE 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA,

Michigan Wages Highway Construction  
 BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,  
 CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,  
 DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE,  
 GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO,  
 IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW,  
 LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE,  
 MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE,  
 MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW,  
 ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE,  
 ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST.  
 JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
ZONE 1.....	\$ 31.47	13.81
ZONE 2.....	\$ 29.97	13.81

-----  
 PLUM0190-003 05/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY,  
 BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,  
 CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,  
 DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND  
 TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA,  
 IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT,  
 KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE,  
 MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA,  
 MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE,  
 MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA,  
 OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST.  
 CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA,  
 VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
Plumber/Pipefitter - gas distribution pipeline:		
Welding in conjunction with gas distribution pipeline work.....	\$ 33.03	20.19
All other work:.....	\$ 24.19	12.28

-----  
 TEAM0007-004 06/01/2018

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA,  
 BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,  
 CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,  
 DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE,  
 GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO,  
 IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW,  
 LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE,  
 MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE,  
 MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW,  
 ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE,  
 ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST.  
 CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW  
 AND WAYNE COUNTIES

# Michigan Wages Highway Construction

	Rates	Fringes
TRUCK DRIVER		
AREA 1		
Euclids, double bottoms and lowboys.....	\$ 26.55	.50 + a+b
Trucks under 8 cu. yds.....	\$ 26.30	.50 + a+b
Trucks, 8 cu. yds. and over.....	\$ 26.40	.50 + a+b
AREA 2		
Euclids, double bottomms and lowboys.....	\$ 24.895	.50 + a+b
Euclids, double bottoms and lowboys.....	\$ 26.65	.50 + a+b
Trucks under 8 cu. yds.....	\$ 26.40	.50 + a+b
Trucks, 8 cu. yds. and over.....	\$ 26.50	.50 + a+b

## Footnote:

a. \$446.70 per week

b. \$67.00 daily

-----  
TEAM0247-004 04/01/2013

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, SAGINAW, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

	Rates	Fringes
Sign Installer		
AREA 1		
GROUP 1.....	\$ 21.78	11.83
GROUP 2.....	\$ 25.27	11.8375
AREA 2		
GROUP 1.....	\$ 22.03	11.83
GROUP 2.....	\$ 25.02	11.8375

## FOOTNOTE:

a. \$132.70 per week, plus \$17.80 per day.

## SIGN INSTALLER CLASSIFICATIONS:

GROUP 1: performs all necessary labor and uses all tools required to construct and set concrete forms required in the installation of highway and street signs

Michigan Wages Highway Construction  
 GROUP 2: performs all miscellaneous labor, uses all hand and power tools, and operates all other equipment, mobile or otherwise, required for the installation of highway and street signs

-----  
 TEAM0247-010 04/01/2018

AREA 1: LAPEER AND SHIAWASSEE COUNTIES

AREA 2: GENESEE, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES

	Rates	Fringes
TRUCK DRIVER (Underground construction)		
AREA 1		
GROUP 1.....	\$ 23.82	19.04
GROUP 2.....	\$ 23.91	19.04
GROUP 3.....	\$ 24.12	19.04
AREA 2		
GROUP 1.....	\$ 24.12	19.04
GROUP 2.....	\$ 24.26	19.04
GROUP 3.....	\$ 24.45	19.04

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

SCOPE OF WORK: Excavation, site preparation, land balancing, grading, sewers, utilities and improvements; also including but not limited to, tunnels, underground piping, retention, oxidation, flocculation facilities, conduits, general excavation and steel sheeting for underground construction. Underground construction work shall not include any structural modifications, alterations, additions and repairs to buildings or highway work, including roads, streets, bridge construction and parking lots or steel erection.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver on all trucks (EXCEPT dump trucks of 8 cubic yards capacity or over, pole trailers, semis, low boys, Euclid, double bottom and fuel trucks)

GROUP 2: Truck driver on dump trucks of 8 cubic yards capacity or over, pole trailers, semis and fuel trucks

GROUP 3: Truck driver on low boy, Euclid and double bottom

-----  
 SUMI 2002-001 05/01/2002

	Rates	Fringes
Flag Person.....	\$ 10.10	0.00
LINE PROTECTOR (ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)....	\$ 18.98	12.85

# Michigan Wages Highway Construction

LINE PROTECTOR (ZONE 2:  
STATEWIDE (EXCLUDING GENESEE,  
MACOMB, MONROE, OAKLAND,  
WASHTENAW AND WAYNE).....\$ 17.14                      12.85

Pavement Marking Machine  
(ZONE 1: GENESEE, MACOMB,  
MONROE, OAKLAND, WASHTENAW  
AND WAYNE COUNTIES)  
Group 1.....\$ 25.74                      12.85

Pavement Marking Machine  
(ZONE 1: GENESEE, MACOMB,  
MONROE, OAKLAND, WASHTENAW  
AND WAYNE)  
Group 2.....\$ 23.17                      12.85

Pavement Marking Machine  
(ZONE 2: STATEWIDE (EXCLUDING  
GENESEE, MACOMB, MONROE,  
OAKLAND, WASHTENAW AND WAYNE  
COUNTIES)  
Group 1.....\$ 23.67                      12.85

Pavement Marking Machine  
(ZONE 2: STATEWIDE (EXCLUDING  
GENESEE, MACOMB, MONROE,  
OAKLAND, WASHTENAW AND WAYNE)  
Group 2.....\$ 21.30                      12.85

## WORK CLASSIFICATIONS:

PAVEMENT MARKER GROUP 1: Drives or operates a truck mounted  
striper, grinder, blaster, groover, or thermoplastic melter  
for the placement or removal of temporary or permanent  
pavement markings or markers.

PAVEMENT MARKER GROUP 2: Performs all functions involved for  
the placement or removal of temporary or permanent pavement  
markings or markers not covered by the classification of  
Pavement Marker Group 1 or Line Protector.

LINE PROTECTOR: Performs all operations for the protection or  
removal of temporary or permanent pavement markings or  
markers in a moving convoy operation not performed by the  
classification of Pavement Marker Group 1. A moving convoy  
operation is comprised of only Pavement Markers Group 1 and  
Line Protectors.

-----  
WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.

=====  
Note: Executive Order (EO) 13706, Establishing Paid Sick Leave  
for Federal Contractors applies to all contracts subject to the  
Davis-Bacon Act for which the contract is awarded (and any  
solicitation was issued) on or after January 1, 2017. If this  
contract is covered by the EO, the contractor must provide  
employees with 1 hour of paid sick leave for every 30 hours  
they work, up to 56 hours of paid sick leave each year.

Michigan Wages Highway Construction  
Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

-----

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the

Michigan Wages Highway Construction wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

---

#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U. S. Department of Labor  
200 Constitution Avenue, N. W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U. S. Department of Labor



Michigan Wages Highway Construction  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION

## 29 CFR Part 5 – Labor Standards Provisions for Federally Assisted Projects

### § 5.5 Contract provisions and related matters.

(a) The Agency head shall cause or require the contracting officer to insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in Sec. 5.1, the following clauses (or any modifications thereof to meet the particular needs of the agency, *Provided*, That such modifications are first approved by the Department of Labor):

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

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

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) *Withholding.* The (write in name of Federal Agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of

1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) *Payrolls and basic records.* (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/whd/forms/wh347.pdf> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the (write in name of appropriate federal agency) if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the applicant, sponsor, or owner, as the case may be, for transmission to the (write in name of agency), the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

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

(1) That the payroll for the payroll period contains the information required to be provided under Sec. 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under Sec. 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

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

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

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

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

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

(4) *Apprentices and trainees--(i) Apprentices.* Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its

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

(ii) *Trainees.* Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) *Equal employment opportunity.* The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) *Compliance with Copeland Act requirements.* The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) *Contract termination: debarment.* A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) *Compliance with Davis-Bacon and Related Act requirements.* All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) *Disputes concerning labor standards.* Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) *Certification of eligibility.* (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

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

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

(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible there for shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in Sec. 5.1, the Agency Head shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Agency Head shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.



## **Disadvantaged Business Enterprises (DBE)**

Prime contractors bidding on this project must follow, document, and maintain documentation of their Good Faith Efforts, as listed below, to ensure that Disadvantaged Business Enterprises (DBEs) have the opportunity to participate in the project by increasing DBE awareness of procurement efforts and outreach. Bidders must make the following Good Faith Efforts for any work that will be subcontracted.

1. Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. Place DBEs on solicitation lists and solicit DBEs whenever they are potential sources.
2. Make information on forthcoming opportunities available to DBEs. Arrange time-frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. Whenever possible, post solicitation for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date. The DBEs should be given a minimum of 5 days to respond to the posting.
3. Consider in the contracting process whether firms competing for large contracts can be subcontracted with DBEs. Divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
4. Encourage contracting with a consortium of DBEs when a contract is too large for one DBE firm to handle individually.
5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce.

Subsequent to compliance with the Good Faith Efforts, the following conditions also apply under the DBE requirements. Completed Good Faith Efforts Worksheets (Attachment 1), along with the required supporting documentation outlined in the instructions, must be submitted with your bid proposal. EPA form 6100-2 must also be provided at the pre-bid meeting. A copy of this form is available on the Forms and Guidance page of the Revolving Loan website.

1. The prime contractor must pay its subcontractor for work that has been satisfactorily completed no more than 30 days from the prime contractor's receipt of payment from the owner.
2. The prime contractor must notify the owner in writing prior to the termination of any DBE subcontractor for convenience by the prime contractor and employ the Good Faith Efforts if soliciting a replacement contractor.
3. If a DBE contractor fails to complete work under the subcontract for any reason, the prime contractor must employ the Good Faith Efforts if soliciting a replacement contractor.
4. The prime contractor must employ the Good Faith Efforts.

## **Debarment Certification**

The prime contractor must provide a completed **Certification Regarding Debarment, Suspension, and Other Responsibility Matters Form** with its bid or proposal package to the owner (Attachment 2).

**Attachment 1**

**Disadvantaged Business Enterprise (DBE) Utilization  
GOOD FAITH EFFORTS WORKSHEET**

**Michigan Department of Environmental Quality  
Office of Drinking Water and Municipal Assistance– Revolving Loan Section  
Disadvantaged Business Enterprise (DBE) Utilization  
State Revolving Fund/Drinking Water Revolving Fund  
GOOD FAITH EFFORTS WORKSHEET**

Bidder: \_\_\_\_\_

Subcontract Area of Work (one per worksheet): \_\_\_\_\_

Outreach Goal: Solicit a minimum of three (3) DBEs via email/letter/fax. It is recommended that various sources be used to locate the minimum number of DBEs. The Michigan Department of Transportation (MDOT) website and [www.sam.gov](http://www.sam.gov) registries may be two resources used to find a minimum of three DBEs.

List the DBEs contacted for the above area of work and complete the following information for each DBE.

Company Name	Type of Contact	Date of Contact	Price Quote Received	Accepted/ Rejected	Please Explain if Rejected
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	
				<input type="checkbox"/> A <input type="checkbox"/> R	

Explanation for Not Achieving a Minimum of Three Contacts; you may include a printout of the MDOT and [www.sam.gov](http://www.sam.gov) search results (attach extra sheets if necessary):

MITA DBE Posting Date (if applicable): \_\_\_\_\_  
(attach a copy of the DBE advertisement)

Other Efforts (attach extra sheets if necessary):

**Please include the completed worksheet and supporting documentation with the bid proposal.**

*Rev.3-2015*

Rick Snyder, Governor



Dan Wyant, Director

**Michigan Department of Environmental Quality  
Office of Drinking Water and Municipal Assistance– Revolving Loan Section  
Disadvantaged Business Enterprise (DBE) Utilization  
State Revolving Fund/Drinking Water Revolving Fund  
GOOD FAITH EFFORTS WORKSHEET**

**Instructions to Bidders for the Completion of the Good Faith Efforts Worksheet**

1. Separate worksheets must be provided for each area of work to be subcontracted out. This includes both major and minor subcontracts.
2. A minimum of three (3) DBEs must be contacted by a verifiable means of communication such as e-mail, letter, or fax for each area of work to be subcontracted out. Copies of the solicitation letters/e-mails and fax confirmation sheets must be provided with the worksheet.
3. If less than three (3) DBEs exist statewide for the area of work, then provide documentation that other DBE resources were consulted. This may include the MDOT and [www.sam.gov](http://www.sam.gov) registries and an advertisement in a publication. A printout of the website searched (conducted prior to the end of the bid period) must be submitted.
4. Posting solicitations for quotes/proposals from DBEs on the MITA website ([www.mitadbe.com](http://www.mitadbe.com)) is highly recommended to facilitate participation in the competitive process whenever possible. The solicitation needs to identify the project and the areas of work to be subcontracted out. A copy of the MITA DBE advertisement must be submitted with the Good Faith Efforts worksheet, if used, or a printout of the resulting quotes posted to the MITA website can be submitted with this form as supporting documentation.
5. If the area of work is so specialized that no DBEs exist, then an explanation is required to support that conclusion, including the documentation required in No. 3 above.
6. The date of the DBE contact must be identified, as it is important to document that the DBE solicitation was made during the bid period and that sufficient time was given for the DBE to return a quote.
7. Each DBE firm's price quote must be identified if one was received or N/A entered on the worksheet if a quote was not received. Copies of all quotes must be submitted with the worksheet.
8. If a quote was received, indicate if it was accepted or rejected. Justification for not accepting a quote and not using the DBE subcontractor must be provided.
9. Under Other Efforts, please indicate additional steps you have taken to obtain DBE contractors and provide the appropriate supporting documentation such as:
  - Follow-up e-mails, faxes, or letters.
  - Copies of announcements/postings in newspapers, trade publications, or minority media that target DBE firms.

*Rev. 3-2015*

**Attachment 2**

***Certification Regarding  
Debarment, Suspension, and Other Responsibility Matters***

**Certification Regarding  
Debarment, Suspension, and Other Responsibility Matters**

The prospective participant certifies, to the best of its knowledge and belief, that it and its principals:

- (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in transactions under federal nonprocurement programs by any federal department or agency;
- (2) Have not, within the three year period preceding the proposal, had one or more public transactions (federal, state, or local) terminated for cause or default; and
- (3) Are not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) and have not, within the three year period preceding the proposal, been convicted of or had a civil judgment rendered against it:
  - (a) For the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public transaction (federal, state, or local) or a procurement contract under such a public transaction;
  - (b) For the violation of federal or state antitrust statutes, including those proscribing price fixing between competitors, the allocation of customers between competitors, or bid rigging; or
  - (c) For the commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

I understand that a false statement on this certification may be grounds for the rejection of this proposal or the termination of the award. In addition, under 18 U.S.C. §1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to five years, or both.

---

Name and Title of Authorized Representative

---

Name of Participant Agency or Firm

---

Signature of Authorized Representative

---

Date

☐ I am unable to certify to the above statement. Attached is my explanation.

**Attachment 3**

***Frequently Asked Questions About  
Disadvantaged Business Enterprise (DBE) Solicitation***



## Disadvantaged Business Enterprise (DBE) Requirements Frequently Asked Questions Regarding Contractor Compliance

**Q:** What is the Good Faith Efforts Worksheet form and how is it to be completed?

**A:** This form captures efforts by the prime contractor to solicit DBEs for each area of work type that will be subcontracted out. A separate Good Faith Efforts Worksheet must be provided by the prime contractor for each area of work type to be subcontracted out. There are specific instructions that accompany this form that prescribe minimum efforts which bidders must make in order to be in compliance with the DBE requirements.

**Q:** Can non-certified DBEs be used?

**A:** While non-certified DBEs can be used, only DBEs, MBEs, and WBEs that are certified by EPA, SBA, or MDOT (or by tribal, state and local governments, as long as their standards for certification meet or exceed the standards in EPA policy) can be counted toward the fair share goal. Proof of certification by one of these recognized and approved agencies should be sought from each DBE.

**Q:** How does a DBE get certified?

**A:** Applications for certification under MDOT can be found at <http://mdotiboss.state.mi.us/UCP/LearnHowServlet>.

Applications for certification under EPA can be found on EPA's Small Business Programs website at [http://www.epa.gov/osbp/dbe\\_firm.htm](http://www.epa.gov/osbp/dbe_firm.htm) under Certification Forms.

**Q:** If a bidder follows the MDOT DBE requirements, will the bidder be in compliance with the SRF/DWRF DBE requirements?

**A:** No. Federally funded highway projects utilize DBE goals, which require that a certain percentage of work be performed by DBE subcontractors. For SRF/DWRF projects, there is no financial goal. However, there is a solicitation effort goal. Bidders must use Good Faith Efforts for each and every area of work to be subcontracted out to obtain DBEs. The bidders are not required to use DBEs if the quotes are higher than non-DBE subcontractors.

**There is no required DBE participation percentage contract goal for the SRF/DWRF.** However, if the SRF/DWRF project is part of a joint project with MDOT, the project can be excluded from SRF/DWRF DBE requirements (i.e., the Good Faith Efforts Worksheet is not required) as it would be difficult to comply with both programs' requirements.

**Q:** Must the Good Faith Efforts Worksheet and supporting documentation be turned in with the bid proposals?

**A:** Yes. This is a requirement to document that the contractor has complied with the DBE requirements and the Good Faith Efforts. These compliance efforts must be done during the bidding phase and not after-the-fact. It is highly recommended that the need for these efforts and the submittal of the forms with the bid proposals be emphasized at the pre-bid meetings. Failure to show that the Good Faith Efforts were complied with during the bidding process can lead to a prime contractor being found non-responsive.

**Q:** Does EPA form 6100-2 need to be provided at the pre-bid meeting?

**A:** Yes. The form must be made available at the pre-bid meeting.

**Q:** What kinds of documentation should a contractor provide to document solicitation efforts?

**A:** Documentation can include fax confirmation sheets, copies of solicitation letters/e-mails, printouts of online solicitations, printouts of online search results, affidavits of publication in newspapers, etc.

**Q:** How much time will compliance with the Good Faith Efforts require in terms of structuring an adequate bidding period?

**A:** Due to the extent of the efforts required, a minimum of 30 calendar days is recommended between bid posting and bid opening to ensure adequate time for contractors to locate certified DBEs and solicit quotes.

**Q:** How does a contractor locate certified DBEs?

**A:** The Michigan Department of Transportation has a directory of all Michigan certified entities located at <http://mdotjboss.state.mi.us/UCP/>. Additionally, the federal System for Award Management (SAM) is another place to search and can be found at [www.sam.gov](http://www.sam.gov). SAM contains information from the former Central Contractor Registration (CCR) database.

**Q:** If the bidder does not intend to subcontract any work, what forms, if any, must be provided with the bid proposal?

**A:** The bidder should complete the Good Faith Efforts Worksheet with a notation that no subcontracting will be done. However, if the bidder is awarded the contract and then decides to subcontract work at any point, then the Good Faith Efforts must be made to solicit DBEs.

**Q:** In the perfect world, the Good Faith Efforts Worksheet is required to be turned in with the proposal. What if no forms are turned in with the bid proposal or forms are blank or incomplete? Should this be cause to determine that the bidder is non-responsive?

**A:** While the Good Faith Efforts Worksheet is important, it is more critical to confirm that the contractor complied with the DBE requirements prior to bid opening. The owner should contact the bidder as soon as deficiencies are noted for a determination/documentation of efforts taken to comply with the DBE requirements. Immediate submittal of the completed forms will be acceptable provided the Good Faith Efforts were made and it is just a matter of transferring information to the forms.

**Q:** If the prime contractor is a DBE, does he have to solicit DBE subcontractors?

**A:** Yes, the DBE requirements still apply if the prime intends to subcontract work out. Good Faith Efforts must be used to solicit DBEs.

**Q:** If the area of work is one where there are less than three DBE contractors, how is the contractor to document this?

**A:** Copies of printouts from MDOT and SAM showing no DBEs and advertisements soliciting quotes for all subcontract areas, including the questionable areas, will be adequate if the dates on the printouts are prior to the bid or proposal closing date.

SECTION 00220

GEOTECHNICAL DATA

The following Geotechnical Data have been used to design this project:

Soil Borings Report from Soils and Structures, December 23, 2018, attached.

Analysis Report from Trace Analytical Laboratories, Inc., January 21, 2019, attached.

END OF SECTION



## SOILS & STRUCTURES

Page Two

December 23, 2018

City of Muskegon State Revolving Fund (SRF) Project

Muskegon, Muskegon County, Michigan

Project No. 2018.2014



Photograph #1: Test boring locations of Test Borings One through Nine shown on a portion of an aerial obtained from Google. Note the locations as shown are approximate. (City of Muskegon SRF, Muskegon, Michigan, Project No. 2018.2014, December 2018)





## SOILS & STRUCTURES

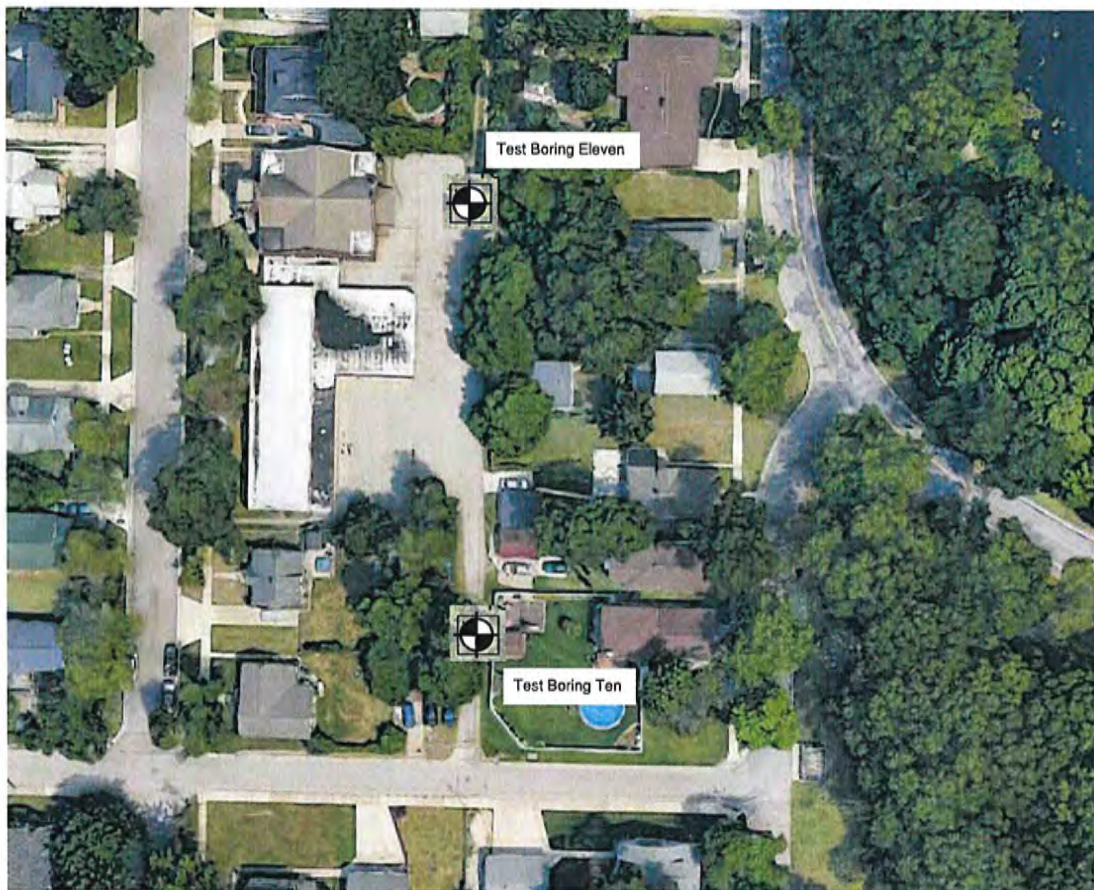
Page Three

December 23, 2018

City of Muskegon State Revolving Fund (SRF) Project

Muskegon, Muskegon County, Michigan

Project No. 2018.2014



Photograph #2: Test boring locations of Test Borings Ten and Eleven shown on a portion of an aerial obtained from Google. Note the locations as shown are approximate. (City of Muskegon SRF, Muskegon, Michigan, Project No. 2018.2014, December 2018)



# SOILS & STRUCTURES

Borehole ID: Test Boring #01

Sheet 1 of 1

<b>Project Name:</b>	City of Muskegon - SRF	<b>Project Number:</b>	2018.2014
<b>Project Location:</b>	Muskegon, Michigan	<b>Logged By:</b>	C Christopher
<b>Client:</b>	Eng., Inc.	<b>Reviewed By:</b>	S Synnestvedt
<b>Date Started:</b>	Dec 03 2018	<b>Completed:</b>	Dec 03 2018
<b>Drilling Method:</b>	3-1/4" Hollow Stem Auger	<b>Survey Datum:</b>	NAD 1983 StatePlane Michigan South
<b>Equipment:</b>	Diedrich D-50	<b>Hole Depth:</b>	15.00
<b>Hammer Type:</b>	Automatic Hammer	<b>Northing:</b>	639795.2
<b>Notes:</b>		<b>Easting:</b>	12623750.7
		<b>Elevation:</b>	592.82
		<b>Ground Water Levels</b>	
		At Time of Drilling	11.80 on Dec 03 2018
		End of Drilling	14.00 on Dec 03 2018

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		TOPSOIL - dark brown sandy with a trace of gravel (4")												
2		SAND - loose brown fine with a trace of gravel												
3				▼	SPT-A	100	1-1-2	3						SP
4				▼										
5				▼	SPT-B	100	2-1-2	3						SP
6		SAND - loose brown fine with silt												
7				▼										
8		SAND - loose brown fine with a trace of gravel			SPT-C	100	1-1-1	2						SP-SM
9														
10				▼	SPT-D	100	1-1-1	2						SP
11														
12														
13		SAND - compact brown fine												
14				▼	SPT-E	100	4-4-6	10						SP
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														



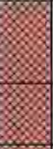







# SOILS & STRUCTURES

Borehole ID: Test Boring #02

Sheet 1 of 2

<b>Project Name:</b>	City of Muskegon - SRF	<b>Project Number:</b>	2018.2014
<b>Project Location:</b>	Muskegon, Michigan	<b>Logged By:</b>	C Christopher
<b>Client:</b>	Eng., Inc.	<b>Reviewed By:</b>	S Synnestvedt
<b>Date Started:</b>	Dec 03 2018	<b>Completed:</b>	Dec 03 2018
<b>Drilling Method:</b>	3-1/4" Hollow Stem Auger	<b>Survey Datum:</b>	NAD 1983 StatePlane Michigan South
<b>Equipment:</b>	Diedrich D-50	<b>Hole Depth:</b>	40.00
<b>Hammer Type:</b>	Automatic Hammer	<b>Northing:</b>	639578.3
<b>Notes:</b>		<b>Easting:</b>	12624108.0
		<b>Elevation:</b>	588.31
		<b>Ground Water Levels</b>	
		At Time of Drilling	4.00 on Dec 03 2018
		End of Drilling	20.00 on Dec 03 2018

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS	
											Liquid Limit	Plastic Limit	Plasticity Index		
1		FILL - dark brown fine sand (foundry sand)													
2		SAND - slightly compact brown fine with topsoil seams (fill);													
3				SPT-A	80	3-3-4	7							SP	
4		SAND - compact black fine gravelly with a trace of silt and brick rubble (fill)													
5				SPT-B	53	4-3-6	9							SP	
6															
7		SAND - loose black fine to coarse silty with lenses of peat and a trace of gravel (fill)													
8				SPT-C	47	1-1-1	2							SM	
9															
10				SPT-D	100	1-0-1	1								SM
11															
12															
13															
14		SAND - loose brown fine (fill)													
15															
16															
17															
18															
19		WOOD - sawdust & chips (fill)													
20				SPT-F	100	1-0-0	0								SP
21															
22															
23															
24		SAND - compact brown fine with wood/sawdust (fill)													
25				SPT-G	100	5-5-8	13								SP & Wood
26															
27															
28															
29		PEAT - dark brown fibrous with wood and a trace of													
30				SPT-H	100	3-3-4	7								PT







# SOILS & STRUCTURES

Borehole ID: Test Boring #02

Sheet 2 of 2

<b>Project Name:</b>	City of Muskegon - SRF	<b>Project Number:</b>	2018.2014
<b>Project Location:</b>	Muskegon, Michigan	<b>Logged By:</b>	C Christopher
<b>Client:</b>	Eng., Inc.	<b>Reviewed By:</b>	S Synnestvedt
<b>Date Started:</b>	Dec 03 2018	<b>Completed:</b>	Dec 03 2018
<b>Drilling Method:</b>	3-1/4" Hollow Stem Auger	<b>Survey Datum:</b>	NAD 1983 StatePlane Michigan South
<b>Equipment:</b>	Diedrich D-50	<b>Hole Depth:</b>	40.00
<b>Hammer Type:</b>	Automatic Hammer	<b>Northing:</b>	639578.3
<b>Notes:</b>		<b>Easting:</b>	12624108.0
		<b>Elevation:</b>	588.31
		<b>Ground Water Levels</b>	
		At Time of Drilling	4.00 on Dec 03 2018
		End of Drilling	20.00 on Dec 03 2018

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
31		PEAT - dark brown fibrous with wood and a trace of sand				33	0-0-0	0						OH
32														
33														
34					SPT-I									
35		ORGANIC SILT - gray												
36														
37														
38		ORGANIC SILT - dark brown sandy with wood/ sawdust				33	1-2-3	5						OH
39														
40														
41														
42														
43														
44														
45														
46														
47														
48														
49														
50														
51														
52														
53														
54														
55														
56														
57														
58														
59														
60														





# SOILS & STRUCTURES

Borehole ID: Test Boring #03

Sheet 1 of 1

<b>Project Name:</b>	City of Muskegon - SRF	<b>Project Number:</b>	2018.2014
<b>Project Location:</b>	Muskegon, Michigan	<b>Logged By:</b>	C Christopher
<b>Client:</b>	Eng., Inc.	<b>Reviewed By:</b>	S Synnestvedt
<b>Date Started:</b>	Dec 03 2018	<b>Completed:</b>	Dec 03 2018
<b>Drilling Method:</b>	3-1/4" Hollow Stem Auger	<b>Survey Datum:</b>	NAD 1983 StatePlane Michigan South
<b>Equipment:</b>	Diedrich D-50	<b>Hole Depth:</b>	30.00
<b>Hammer Type:</b>	Automatic Hammer	<b>Northing:</b>	639112.5
<b>Notes:</b>		<b>Easting:</b>	12623954.3
		<b>Elevation:</b>	587.98
		<b>Ground Water Levels</b>	
		At Time of Drilling	3.00 on Dec 03 2018
		End of Drilling	27.50 on Dec 03 2018

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS	
											Liquid Limit	Plastic Limit	Plasticity Index			
1		ASPHALT - (2")														
2		GRAVEL - brown sandy (7 1/2" subbase)														
3		SAND - very compact brown fine with a trace of silt and a trace of gravel (fill)			SPT-A	100	7-16-21	37								SP
4																
5					SPT-B	100	7-12-13	25								SP
6																
7					SPT-C	100	6-11-13	24								SP
8																
9																
10			SAND - compact brown fine with a trace of gravel (fill)		SPT-D	100	4-6-11	17								SP
11																
12																
13																
14				SPT-E	100	2-3-4	7								SP & Wood	
15		WOOD & SAND - sawdust and fine sand with peat and a trace of gravel (fill)														
16																
17																
18																
19				SPT-F	100	3-2-4	6								SP & Wood	
20																
21																
22																
23																
24				SPT-G	80	1-2-2	4								SP & Wood	
25																
26																
27																
28																
29		SAND - very compact brown fine with a trace of silt and a trace of gravel		SPT-H	100	7-11-13	24								SP	
30																

Ann Arbor

\*

Muskegon

\*

Traverse City

(800)-933-3959



# SOILS & STRUCTURES

Borehole ID: Test Boring #04

Sheet 1 of 1

<b>Project Name:</b>	City of Muskegon - SRF	<b>Project Number:</b>	2018.2014
<b>Project Location:</b>	Muskegon, Michigan	<b>Logged By:</b>	C Christopher
<b>Client:</b>	Eng., Inc.	<b>Reviewed By:</b>	S Synnestvedt
<b>Date Started:</b>	Dec 04 2018	<b>Completed:</b>	Dec 04 2018
<b>Drilling Method:</b>	3-1/4" Hollow Stem Auger	<b>Survey Datum:</b>	NAD 1983 StatePlane Michigan South
<b>Equipment:</b>	Diedrich D-50	<b>Hole Depth:</b>	20.00
<b>Hammer Type:</b>	Automatic Hammer	<b>Northing:</b>	638583.5
<b>Notes:</b>		<b>Easting:</b>	12623612.6
		<b>Elevation:</b>	618.05
		<b>Ground Water Levels</b>	
		At Time of Drilling Dec 04 2018 - Water Not Encountered	

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS	
											Liquid Limit	Plastic Limit	Plasticity Index		
1		ASPHALT - 2 1/4"													
2		GRAVEL - brown sandy (6 1/2" subbase)													
3		SAND - slightly compact to compact brown fine with a trace of gravel		▲	SPT-A	53	2-4-6	10							SP
4															
5				▲	SPT-B	87	2-3-4	7							SP
6															
7				▲	SPT-C	100	2-2-3	5							SP
8															
9															
10				▲	SPT-D	100	3-4-5	9							SP
11															
12															
13	SAND - extremely compact brown fine with a trace of silt														
14															
15			▲	SPT-E	100	12-22-34	56							SP	
16															
17															
18															
19			▲	SPT-F	100	14-21-44	65							SP	
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															



# SOILS & STRUCTURES

Borehole ID: Test Boring #05

Sheet 1 of 1

<b>Project Name:</b>	City of Muskegon - SRF	<b>Project Number:</b>	2018.2014
<b>Project Location:</b>	Muskegon, Michigan	<b>Logged By:</b>	C Christopher
<b>Client:</b>	Eng., Inc.	<b>Reviewed By:</b>	S Synnestvedt
<b>Date Started:</b>	Dec 04 2018	<b>Completed:</b>	Dec 04 2018
<b>Drilling Method:</b>	3-1/4" Hollow Stem Auger	<b>Survey Datum:</b>	NAD 1983 StatePlane Michigan South
<b>Equipment:</b>	Diedrich D-50	<b>Hole Depth:</b>	15.00
<b>Hammer Type:</b>	Automatic Hammer	<b>Northing:</b>	638742.8
<b>Notes:</b>		<b>Eastng:</b>	12623401.2
		<b>Elevation:</b>	604.40
		<b>Ground Water Levels</b>	
		<b>End of Drilling</b>	14.00 on Dec 04 2018

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		ASPHALT - 3"												
2		GRAVEL - brown sandy (6 1/2" subbase)												
3		SAND - slightly compact brown fine with a trace of gravel		▲	SPT-A	100	3-2-3	5						SP
4		SAND - compact brown fine with seams of recycled asphalt		▲										
5				▲	SPT-B	100	3-8-8	16						SP
6				▲										
7		SAND - slightly compact brown fine with a trace of gravel		▲	SPT-C	100	13-6-5	11						SP
8				▲										
9				▲	SPT-D	100	2-3-4	7						SP
10		SAND - compact brown fine		▲										
11				▲										
12				▲	SPT-E	100	2-4-5	9						SP
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														





# SOILS & STRUCTURES

Borehole ID: Test Boring #06

Sheet 1 of 1

Project Name: City of Muskegon - SRF Project Number: 2018.2014  
 Project Location: Muskegon, Michigan Logged By: C Christopher Reviewed By: S Synnestvedt  
 Client: Eng., Inc. Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 25.00  
 Date Started: Dec 04 2018 Completed: Dec 04 2018 Northing: 639043.5 Easting: 12623220.5 Elevation: 583.45  
 Drilling Method: 3-1/4" Hollow Stem Auger Ground Water Levels  
 Equipment: Diedrich D-25 At Time of Drilling 6.50 on Dec 04 2018  
 Hammer Type: Automatic Hammer End of Drilling 6.50 on Dec 04 2018  
 Notes:

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		ASPHALT - (7 3/4")												
2		GRAVEL - dark brown sandy (9" subbase)												
3		SAND - slightly compact black fine with a trace of gravel and with a noticeable petroleum odor (fill)												
4				▼	SPT-A	100	5-4-3	7						SP
5				▼										
6				▼	SPT-B	100	2-2-3	5						SP
7		WOOD & SAND - sawdust and fine sand with peat and a noticeable petroleum odor (fill)		▼										
8				▼	SPT-C	100	2-1-2	3						SP
9				▼										
10				▼	SPT-D	47	1-2-1	3						SP & Wood
11														
12														
13														
14				▼	SPT-E	100	3-4-4	8						SP & Wood
15														
16														
17														
18				▼	SPT-F	7	1-2-3	5						SP & Wood
19														
20														
21														
22														
23														
24				▼	SPT-G	0	1-0-0	0						SP & Wood
25														
26														
27														
28														
29														
30														



# SOILS & STRUCTURES

Borehole ID: Test Boring #07

Sheet 1 of 1

Project Name:	City of Muskegon - SRF	Project Number:	2018.2014
Project Location:	Muskegon, Michigan	Logged By:	C Christopher
Client:	Eng., Inc.	Reviewed By:	S Synnestvedt
Date Started:	Dec 04 2018	Survey Datum:	NAD 1983 StatePlane Michigan South
Completed:	Dec 04 2018	Hole Depth:	20.00
Drilling Method:	3-1/4" Hollow Stem Auger	Northing:	639200.2
Equipment:	Diedrich D-25	Easting:	12623125.3
Hammer Type:	Automatic Hammer	Elevation:	585.63
Notes:	Ground Water Levels		
		At Time of Drilling	3.90 on Dec 04 2018
		End of Drilling	13.00 on Dec 04 2018

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		ASPHALT - (6 1/2")												
2		TOPSOIL - dark brown sandy (7")												
3		SAND - loose dark brown fine with a trace of gravel and with wood/sawdust (fill)												
4				▼	SPT-A	100	3-2-2	4						SP
5		PEAT - dark brown with wood		▼										
6				▼	SPT-B	100	2-1-1	2						PT
7		WOOD & SAND - sawdust and fine sand with peat (fill)		▼										
8				▼	SPT-C	100	2-3-4	7						SP
9				▼	SPT-D	80	2-3-3	6						SP & Wood
10														
11														
12														
13														
14				▼	SPT-E	47	1-1-1	2						SP & Wood
15														
16		SAND - loose brown fine												
17														
18														
19				▼	SPT-F	80	2-1-2	3						SP
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														



# SOILS & STRUCTURES

Borehole ID: Test Boring #08

Sheet 1 of 1

<b>Project Name:</b>	City of Muskegon - SRF	<b>Project Number:</b>	2018.2014
<b>Project Location:</b>	Muskegon, Michigan	<b>Logged By:</b>	C Christopher
<b>Client:</b>	Eng., Inc.	<b>Reviewed By:</b>	S Synnestvedt
<b>Date Started:</b>	Dec 04 2018	<b>Completed:</b>	Dec 04 2018
<b>Drilling Method:</b>	3-1/4" Hollow Stem Auger	<b>Survey Datum:</b>	NAD 1983 StatePlane Michigan South
<b>Equipment:</b>	Diedrich D-25	<b>Hole Depth:</b>	15.00
<b>Hammer Type:</b>	Automatic Hammer	<b>Northing:</b>	639442.8
<b>Notes:</b>		<b>Easting:</b>	12622985.6
		<b>Elevation:</b>	588.09
		<b>Ground Water Levels</b>	
		At Time of Drilling	7.00 on Dec 04 2018
		End of Drilling	12.50 on Dec 04 2018

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Index		
1		ASPHALT - (5")													
2		GRAVEL - dark brown sandy (8" subbase)													
3		SAND - compact dark brown fine with a trace of silt and a trace of gravel (fill)													
4															
5															
6		SAND - compact dark brown fine with lenses of gravel (fill)													
7		WOOD & SAND - sawdust and fine sand with a trace of gravel (fill)													
8															
9															
10		SAND - compact dark brown fine silty with peat and wood													
11															
12															
13		SAND - compact brown fine													
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															





# SOILS & STRUCTURES

Borehole ID: Test Boring #09

Sheet 1 of 1

Project Name:	City of Muskegon - SRF	Project Number:	2018.2014
Project Location:	Muskegon, Michigan	Logged By:	C Christopher
Client:	Eng., Inc.	Reviewed By:	S Synnestvedt
Date Started:	Dec 04 2018	Survey Datum:	NAD 1983 StatePlane Michigan South
Completed:	Dec 04 2018	Hole Depth:	10.00
Drilling Method:	3-1/4" Hollow Stem Auger	Northing:	639253.4
Equipment:	Diedrich D-25	Easting:	12622544.9
Hammer Type:	Automatic Hammer	Elevation:	599.53
Notes:	Ground Water Levels		
	End of Drilling		
	Dec 04 2018 - Water Not Encountered		

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		ASPHALT - (4 1/2")												
2		GRAVEL - brown sandy (7" subbase)												
3		SAND - loose brown fine a trace of broken brick and a trace of peat (fill)		▲	SPT-A	100	3-2-1	3						SP & Brick
4				▲										
5		SAND - slightly compact brown fine		▲	SPT-B	100	2-2-2	4						SP
6				▲										
7				▲										
8				▲	SPT-C	87	2-3-4	7						SP
9				▲										
10				▲	SPT-D	100	3-3-4	7						SP
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														



# SOILS & STRUCTURES

Borehole ID: Test Boring #10

Sheet 1 of 1

Project Name: City of Muskegon - SRF Project Number: 2018.2014  
Project Location: Muskegon, Michigan Logged By: C Christopher Reviewed By: S Synnestvedt  
Client: Eng., Inc. Survey Datum: NAD 1983 StatePlane Michigan South Hole Depth: 10.00  
Date Started: Dec 03 2018 Completed: Dec 03 2018 Northing: 630814.3 Easting: 12611771.9 Elevation: 612.31  
Drilling Method: 3-1/4" Hollow Stem Auger Ground Water Levels  
Equipment: Diedrich D-50 At Time of Drilling Dec 03 2018 - Water Not Encountered  
Hammer Type: Automatic Hammer  
Notes: 30' north offset due to overhead lines

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Index		
1		GRAVEL - dark brown sandy (2 1/2")			SPT-A	87	2-1-2	3							SP
2		SAND - black fine (8 1/2" subbase)													
3		SAND - loose brown fine													
4															
5															
6		SAND - slightly compact to compact brown fine													
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															

Ann Arbor

Muskegon

Traverse City

(800)-933-3959





# SOILS & STRUCTURES

Borehole ID: Test Boring #11

Sheet 1 of 1

<b>Project Name:</b>	City of Muskegon - SRF	<b>Project Number:</b>	2018.2014
<b>Project Location:</b>	Muskegon, Michigan	<b>Logged By:</b>	C Christopher
<b>Client:</b>	Eng., Inc.	<b>Reviewed By:</b>	S Synnestvedt
<b>Date Started:</b>	Dec 03 2018	<b>Completed:</b>	Dec 03 2018
<b>Drilling Method:</b>	3-1/4" Hollow Stem Auger	<b>Survey Datum:</b>	NAD 1983 StatePlane Michigan South
<b>Equipment:</b>	Diedrich D-50	<b>Hole Depth:</b>	10.00
<b>Hammer Type:</b>	Automatic Hammer	<b>Northing:</b>	631056.1
<b>Notes:</b>		<b>Easting:</b>	12611775.7
		<b>Elevation:</b>	611.30
		<b>Ground Water Levels</b>	
		<input checked="" type="checkbox"/> At Time of Drilling	Dec 03 2018 - Water Not Encountered

Depth	Graphic	Material Description	Cautionary Condition	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits			USCS
											Liquid Limit	Plastic Limit	Plasticity Index	
1		GRAVEL - gray, 2' surface gravel		▲	SPT-A	73	2-2-3	5						SP
2		SAND - dark brown fine with a trace of gravel (6" subbase)												
3		SAND - slightly compact brown fine												
4				▲	SPT-B	80	2-3-4	7					SP	
5														
6														
7				▲	SPT-C	100	2-3-4	7					SP	
8		SAND - compact brown fine												
9														
10				▲	SPT-D	100	3-3-5	8					SP	
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														

Ann Arbor

Muskegon

Traverse City

(800)-933-3959

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

January 21, 2019

Mr. Jon Erickson  
Soils and Structures  
6480 Grand Haven Road  
Muskegon, MI 49441

Phone: (231) 760-6821

Fax: (231) 798-1383

RE: Trace Project T19A145  
Client Project City of Muskegon - SRF

Dear Mr. Erickson:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at [jmink@trace-labs.com](mailto:jmink@trace-labs.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Mink".

Jon Mink  
Senior Project Manager  
Enclosures



NJDEP Accreditation No. MI008

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

#### SAMPLE SUMMARY

Trace Project ID: T19A145  
Client Project ID: City of Muskegon - SRF

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T19A145-01	Above Groundwater	Soil	jh	01/08/19 14:35	01/08/19 15:14
T19A145-02	Below Groundwater	Soil	jh	01/08/19 15:00	01/08/19 15:14
T19A145-03	Groundwater	Water	jh	01/08/19 14:50	01/08/19 15:14

#### CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

## AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

### DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.  
Solid matrices Method Blanks are at 100% solids as such results are the same wet or dry.

### DATA QUALIFIERS

Trace ID: T083656-MSD1

#### Analysis: EPA 7470A

##### **Mercury**

Note 203 : The MSD recovery was out of control high, resulting in an out of control RPD between the MS and the MSD. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.

Trace ID: T19A145-03

#### Analysis: EPA 7470A

##### **Mercury**

Note 203 : The MSD recovery was out of control high, resulting in an out of control RPD between the MS and the MSD. The result for this analyte, in the non-spiked version of the sample, must be considered estimated.

### CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.



Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

## ANALYTICAL RESULTS

Trace Project ID: T19A145  
Client Project ID: City of Muskegon - SRF

Trace ID: T19A145-01 Date Collected: 01/08/19 14:35 Matrix: Soil  
Sample ID: Above Groundwater Date Received: 01/08/19 15:14

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
------------	---------	-------	-----	----------	----------	----	----------	----	-------	-----

### METALS, TOTAL

Analysis Method: EPA 7471B

Batch: T083689

Mercury	<0.050 mg/kg dry	0.050	1	01/15/19	dcl	01/16/19	rl	N
---------	------------------	-------	---	----------	-----	----------	----	---

### METALS, TOTAL

Analysis Method: EPA 6010D

Batch: T083663

Barium	8.5 mg/kg dry	1.0	1	01/14/19	dcl	01/17/19	rl	N
Cadmium	<0.20 mg/kg dry	0.20	1	01/14/19	dcl	01/17/19	rl	N
Chromium	<2.0 mg/kg dry	2.0	1	01/14/19	dcl	01/17/19	rl	N
Copper	1.6 mg/kg dry	1.0	1	01/14/19	dcl	01/17/19	rl	N
Lead	7.7 mg/kg dry	1.0	1	01/14/19	dcl	01/17/19	rl	N
Zinc	6.9 mg/kg dry	1.0	1	01/14/19	dcl	01/17/19	rl	N

Analysis Method: EPA 6020B

Batch: T083663

Arsenic	0.72 mg/kg dry	0.11	10	01/14/19	dcl	01/16/19	jbb	N
Selenium	0.29 mg/kg dry	0.20	10	01/14/19	dcl	01/16/19	jbb	N
Silver	<0.10 mg/kg dry	0.10	10	01/14/19	dcl	01/16/19	jbb	N

### WET CHEMISTRY

Analysis Method: ASTM D2974-87

Batch: T083608

% Solids	80 % by Wt.	0.10	1	01/10/19	av	01/14/19	dc	N
----------	-------------	------	---	----------	----	----------	----	---

## CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

## ANALYTICAL RESULTS

Trace Project ID: T19A145  
Client Project ID: City of Muskegon - SRF

Trace ID: T19A145-02 Date Collected: 01/08/19 15:00 Matrix: Soil  
Sample ID: Below Groundwater Date Received: 01/08/19 15:14

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
------------	---------------	-----	----------	----------	----	----------	----	-------	-----

### METALS, TOTAL

Analysis Method: EPA 7471B

Batch: T083689

Mercury	<0.19 mg/kg dry	0.19	1	01/15/19	dcl	01/16/19	rl	N
---------	-----------------	------	---	----------	-----	----------	----	---

### METALS, TOTAL

Analysis Method: EPA 6010D

Batch: T083663

Barium	72 mg/kg dry	1.0	1	01/14/19	dcl	01/17/19	rl	N
Cadmium	0.66 mg/kg dry	0.21	1	01/14/19	dcl	01/17/19	rl	N
Chromium	6.5 mg/kg dry	2.0	1	01/14/19	dcl	01/17/19	rl	N
Copper	28 mg/kg dry	1.0	1	01/14/19	dcl	01/17/19	rl	N
Lead	82 mg/kg dry	1.0	1	01/14/19	dcl	01/17/19	rl	N
Zinc	83 mg/kg dry	1.0	1	01/14/19	dcl	01/17/19	rl	N

Analysis Method: EPA 6020B

Batch: T083663

Arsenic	5.5 mg/kg dry	0.13	10	01/14/19	dcl	01/16/19	jbb	N
Selenium	0.84 mg/kg dry	0.21	10	01/14/19	dcl	01/16/19	jbb	N
Silver	0.14 mg/kg dry	0.10	10	01/14/19	dcl	01/16/19	jbb	N

### WET CHEMISTRY

Analysis Method: ASTM D2974-87

Batch: T083696

% Solids	18 % by WL	0.10	1	01/15/19	av	01/15/19	av	N
----------	------------	------	---	----------	----	----------	----	---

## CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

## ANALYTICAL RESULTS

Trace Project ID: T19A145  
Client Project ID: City of Muskegon - SRF

Trace ID: T19A145-03 Date Collected: 01/08/19 14:50 Matrix: Water  
Sample ID: Groundwater Date Received: 01/08/19 15:14

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
------------	---------	-------	-----	----------	----------	----	----------	----	-------	-----

### METALS, DISSOLVED

Analysis Method: EPA 6020B

Batch: T083807

Arsenic	<0.0050	mg/L	0.0050	1	01/18/19	rl	01/21/19	jbb	N	
<b>Barium</b>	<b>0.10</b>	mg/L	<b>0.10</b>	<b>10</b>	<b>01/18/19</b>	<b>rl</b>	<b>01/21/19</b>	<b>jbb</b>	<b>N</b>	
Cadmium	<0.0010	mg/L	0.0010	1	01/18/19	rl	01/21/19	jbb	N	
Chromium	<0.010	mg/L	0.010	1	01/18/19	rl	01/21/19	jbb	N	
Copper	<0.0040	mg/L	0.0040	1	01/18/19	rl	01/21/19	jbb	N	
Lead	<0.0030	mg/L	0.0030	1	01/18/19	rl	01/21/19	jbb	N	
Selenium	<0.0050	mg/L	0.0050	1	01/18/19	rl	01/21/19	jbb	N	
Silver	<0.00020	mg/L	0.00020	1	01/18/19	rl	01/21/19	jbb	N	
Zinc	<0.050	mg/L	0.050	1	01/18/19	rl	01/21/19	jbb	N	

Analysis Method: EPA 7470A

Batch: T083656

<b>Mercury</b>	<b>0.0032</b>	mg/L	<b>0.00020</b>	<b>1</b>	<b>01/14/19</b>	<b>dcl</b>	<b>01/16/19</b>	<b>rl</b>	<b>203, N</b>	
----------------	---------------	------	----------------	----------	-----------------	------------	-----------------	-----------	---------------	--

## CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.



Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

### QUALITY CONTROL RESULTS

Trace Project ID: T19A145

Client Project ID: City of Muskegon - SRF

QC Batch: T083689

Analysis Description: Mercury, Total, EPA 7470/7471

QC Batch Method: EPA 7471A Prep

Analysis Method: EPA 7471B

#### METHOD BLANK: T083689-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/kg wet	<0.050	0.050	

#### LABORATORY CONTROL SAMPLE: T083689-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/kg wet	0.800	0.824	103	77-122	

Trace Project ID: T19A145

Client Project ID: City of Muskegon - SRF

QC Batch: T083663

Analysis Description: Cadmium, Total

QC Batch Method: EPA 3051 Microwave Assisted Digestions for Solids

Analysis Method: EPA 6010D

#### METHOD BLANK: T083663-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Barium	mg/kg dry	<1.0	1.0	
Cadmium	mg/kg dry	<0.20	0.20	
Chromium	mg/kg dry	<2.0	2.0	
Copper	mg/kg dry	<1.0	1.0	
Lead	mg/kg dry	<1.0	1.0	
Zinc	mg/kg dry	<1.0	1.0	

#### LABORATORY CONTROL SAMPLE: T083663-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Barium	mg/kg dry	40.0	37.8	94	80-120	
Cadmium	mg/kg dry	40.0	37.8	95	80-120	
Chromium	mg/kg dry	40.0	38.9	97	80-120	
Copper	mg/kg dry	40.0	38.4	96	80-120	
Lead	mg/kg dry	40.0	38.1	95	80-120	
Zinc	mg/kg dry	40.0	36.7	92	80-120	

Trace Project ID: T19A145

Client Project ID: City of Muskegon - SRF

### CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.



Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

QC Batch: T083663

QC Batch Method: EPA 3051 Microwave Assisted Digestions  
for Solids

Analysis Description: Silver, Total

Analysis Method: EPA 6020B

**METHOD BLANK: T083663-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/kg dry	<0.10	0.10	
Arsenic	mg/kg dry	<0.12	0.12	
Selenium	mg/kg dry	<0.20	0.20	

**LABORATORY CONTROL SAMPLE: T083663-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/kg dry	5.00	5.18	104	80-120	
Arsenic	mg/kg dry	5.00	5.11	102	80-120	
Selenium	mg/kg dry	5.00	5.04	101	80-120	

Trace Project ID: T19A145

Client Project ID: City of Muskegon - SRF

QC Batch: T083807

QC Batch Method:

Analysis Description: Zinc, Dissolved

Analysis Method: EPA 6020B

**METHOD BLANK: T083807-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/L	<0.00020	0.00020	
Arsenic	mg/L	<0.0050	0.0050	
Barium	mg/L	<0.10	0.10	
Cadmium	mg/L	<0.0010	0.0010	
Chromium	mg/L	<0.010	0.010	
Copper	mg/L	<0.0040	0.0040	
Lead	mg/L	<0.0030	0.0030	
Selenium	mg/L	<0.0050	0.0050	
Zinc	mg/L	<0.050	0.050	

**LABORATORY CONTROL SAMPLE: T083807-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/L	0.0600	0.0585	98	80-120	
Arsenic	mg/L	0.0600	0.0583	97	80-120	
Barium	mg/L	0.0600	<0.10	97	80-120	
Cadmium	mg/L	0.0600	0.0584	97	80-120	

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

**LABORATORY CONTROL SAMPLE: T083807-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Chromium	mg/L	0.0600	0.0593	99	80-120	
Copper	mg/L	0.0600	0.0579	96	80-120	
Lead	mg/L	0.0600	0.0588	98	80-120	
Selenium	mg/L	0.0600	0.0590	98	80-120	
Zinc	mg/L	0.0600	0.0572	95	80-120	

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T083807-MSD1**

Original: T19A145-03

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Silver	mg/L	0	0.500	0.476	0.490	95	98	75-125	3	20	
Arsenic	mg/L	0.00162	0.500	0.491	0.497	98	99	75-125	1	20	
Barium	mg/L	0.104	0.500	0.571	0.592	93	98	75-125	4	20	
Cadmium	mg/L	0	0.500	0.479	0.498	96	100	75-125	4	20	
Chromium	mg/L	0	0.500	0.480	0.496	96	99	75-125	3	20	
Copper	mg/L	0.00253	0.500	0.479	0.489	95	97	75-125	2	20	
Lead	mg/L	0.00101	0.500	0.463	0.481	92	96	75-125	4	20	
Selenium	mg/L	0	0.500	0.484	0.492	97	98	75-125	2	20	
Zinc	mg/L	0	0.500	0.490	0.501	98	100	75-125	2	20	

Trace Project ID: T19A145

Client Project ID: City of Muskegon - SRF

QC Batch: T083656

QC Batch Method: EPA 7470A Prep

Analysis Description: Mercury, Dissolved, EPA 7470

Analysis Method: EPA 7470A

**METHOD BLANK: T083656-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/L	<0.00020	0.00020	

**LABORATORY CONTROL SAMPLE: T083656-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/L	0.00200	0.00210	105	77-122	

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T083656-MSD1**

Original: T19A145-03

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
-----------	-------	-----------------	-------------	-----------	------------	----------	-----------	-------------	-----	---------	-------

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T083656-MSD1**

Original: T19A145-03

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Mercury	mg/L	0.00318	0.00200	0.00534	0.00586	108	134	76-123	21	20	203

Trace Project ID: T19A145

Client Project ID: City of Muskegon - SRF

QC Batch: T083539

Analysis Description: Filtration for Dissolved Metals

QC Batch Method:

Analysis Method: Dissolved Metals

Trace Project ID: T19A145

Client Project ID: City of Muskegon - SRF

QC Batch: T083608

Analysis Description: Solids, Dry Weight

QC Batch Method: % Solids

Analysis Method: ASTM D2974-B7

Trace Project ID: T19A145

Client Project ID: City of Muskegon - SRF

QC Batch: T083696

Analysis Description: Solids, Dry Weight

QC Batch Method: % Solids

Analysis Method: ASTM D2974-B7

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.





Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

### SAMPLE LOG IN CHECKLIST

Trace ID #: <u>T19A145</u>	Date: <u>1/2/17</u>	Package Description: <u>Cooler</u>	Temperature: <u>-21</u>
Client Name: <u>Soils &amp; Structure</u>	Time: <u>15:14</u>	Logged In by: <u>JS</u>	

### Cooler Receipt

Cooler/samples delivered by:	Trace courier <input type="checkbox"/>	Hand delivered <input checked="" type="checkbox"/>	Commercial courier <input type="checkbox"/>	UPS <input type="checkbox"/>	FED EX <input type="checkbox"/>	US Mail <input type="checkbox"/>
Name of delivery person: _____						
Tracking Number:	<input checked="" type="checkbox"/> Not Applicable					
Tracking #: _____						
COC Seals present and intact on cooler?	<input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> No <input type="checkbox"/> Yes					
Custody seals signed by Client?	<input type="checkbox"/> No <input type="checkbox"/> Yes Client custody seal # (if applicable): _____					

### Coolant and Temperature

<b>Type of Coolant Used</b>		<b>Cooler Temperature</b>	
Slurry w/ crushed, cubed, or chip ice?	<input type="checkbox"/>	<b>Correction Factors:</b>	•Digital Stick Thermometer CF = -0.6°C
Multiple bags of ice around samples?	<input checked="" type="checkbox"/>		•IR Thermometer CF = -0.8°C
Ice Packs/ Blue Ice :	<input type="checkbox"/>	Representative Sample Temperature: _____ °C (check one below)	
No Coolant Present:	<input type="checkbox"/>	<input type="checkbox"/> Temp Blank (Stick Thermometer)	
Ice still present upon receipt (circle one):	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	<input checked="" type="checkbox"/> Client Sample (IR Thermometer)	
		Melt Water: <u>None</u> °C (Use Digital Stick Thermometer)	

### General

	Yes	No	NA	Comments
All bottles arrived unbroken with labels in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Each sample point is in a sealed plastic bag?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Labels filled out completely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All bottle labels agree with Chain of Custody (COC)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sufficient sample to run tests requested?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
pH checked and samples at correct pH?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Below*
Correct preservative added to samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Air bubbles absent from VOAs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
COC filled out properly and signed by client?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
COC signed in by TRACE sample custodian?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was project manager called and samples discussed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

#### Notes:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### \*EMD pH Test Strips Used:

☐ pH 0-2.5 Lot: HC731452 ☐ pH 11.0-13.0 Lot: HC600691  
☐ Other: \_\_\_\_\_

Form 70-A.25  
Effective 7/25/18

TRACE Analytical Laboratories, Inc.

### CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

SECTION 00314

BID  
SPRING STREET SEWER REROUTE AND BOURDON STREET ALLEY SEWER

Bid of \_\_\_\_\_ hereinafter called Bidder, organized and existing under the laws of or a resident of the State of \_\_\_\_\_, doing business as \_\_\_\_\_.\*

\*Insert as applicable: "a corporation", "a partnership" or "an individual".

To City of Muskegon, hereinafter called OWNER.

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work for the Spring Street Sewer Reroute and Bourdon Street Alley Sewer as specified or indicated in the Contract Documents for the Contract Price and within the Contract Times indicated in the Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Advertisement of Bids and Instructions to Bidders including, without limitation, those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the day of bid opening. Bidder will sign and submit the Agreement and the Bonds and other documents required by the Bidding Documents within 15 days after the date of OWNER's Notice of Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

- A. Bidder has examined and carefully studied the Bidding Documents and the following Addenda receipt of all which is hereby acknowledged:

<u>Date</u>	<u>Addendum Number</u>
_____	_____
_____	_____

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance and furnishing of the Work.
- C. Bidder is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect cost, progress, performance and furnishing of the Work.
- D. Bidder has carefully studied all reports of explorations and test of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) if identified in Section 00800: Supplementary Conditions as provided in paragraph 4.02 of Section 00700: General Conditions. Bidder accepts the determination set forth in paragraph SC-4.02 of Section 00800: Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which Bidder is entitled to rely as provided in paragraph 4.02.1 of Section 00700: General Conditions. Bidder acknowledges that such reports and drawings are not Contract Documents and may not be complete for Bidder's purposes. Bidder acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in Bidding Documents with respect to Underground Facilities at or contiguous to the Site.
- E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relates to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto. Bidder does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of the Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.
- F. Bidder is aware of the general nature of Work to be performed by OWNER and others at the Site that relates to Work for which this Bid is submitted as indicated on the Contract Documents.
- G. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings if any are identified in the Contract Documents and all additional or supplementary examinations, investigations, explorations, tests, studies and data with the Contract Documents.

- H. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that Bidder has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to Bidder, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
- I. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other bidder or over OWNER.

4. Bidder will complete the Work for the following unit prices:

Unit Price Schedule  
Spring Street Sewer Reroute and Bourdon Street Alley Sewer

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Amount
1	Audio Visual Filming	LSUM	1	\$	\$
2	Mobilization, Max	LSUM	1	\$	\$
3	Dr Structure, Rem	Ea	42	\$	\$
4	Sewer, Rem, Less than 24 inch	Ft	1268	\$	\$
5	Sewer, Rem, 24 inch to 48 inch	Ft	591	\$	\$
6	Sewer, Rem, Over 48 inch	Ft	423	\$	\$
7	Abandon Existing 12 inch Sewer	Ft	155	\$	\$
8	Abandon Existing 24 inch Sewer	Ft	1226	\$	\$
9	Curb and Gutter, Rem	Ft	3139	\$	\$
10	Sidewalk, Rem	Syd	348	\$	\$
11	Pavt, Rem, Modified	Syd	11805	\$	\$
12	Non Haz Contaminated Material Handling and Disposal, LM	Cyd	2963	\$	\$
13	Machine Grading, Modified	Sta	32	\$	\$
14	Helical Pile	Ea	20	\$	\$
15	Helical Pile, Load Test	Ea	20	\$	\$
16	Dewatering System	LSUM	1	\$	\$
17	Helical Pile Equipment, Furn	LSUM	1	\$	\$
18	Surcharge Roadway	LSUM	1	\$	\$
19	Erosion Control, Check Dam, Stone	Ft	3	\$	\$
20	Erosion Control, Inlet Protection, Fabric Drop	Ea	34	\$	\$
21	Erosion Control, Silt Fence	Ft	1000	\$	\$

22	Subbase, CIP	Cyd	3595	\$	\$
23	Aggregate Base, 5 inch	Syd	1361	\$	\$
24	Aggregate Base, 10 inch	Syd	10533	\$	\$
25	Backfill, Lightweight, Iron Blast Furnace Slag Aggregate, LM	Cyd	1360	\$	\$
26	Aggregate Surface Cse, 6 inch	Syd	73	\$	\$
27	Aggregate Surface Cse, 8 inch	Syd	400	\$	\$
28	Maintenance Gravel, LM	Cyd	100	\$	\$
29	Shoulder, Cl, 1, 6 inch	Syd	90	\$	\$
30	Culv End Sect, 12 inch	Ea	2	\$	\$
31	Sewer Tap, 8 inch	Ea	1	\$	\$
32	Sewer Tap, 10 inch	Ea	1	\$	\$
33	Sewer Tap, 30 inch	Ea	1	\$	\$
34	Video Taping Sewer and Culv Pipe	Ft	5009	\$	\$
35	Sanitary Sewer, PVC, 12 inch	Ft	15	\$	\$
36	Sanitary Sewer, PVC, 18 inch	Ft	389	\$	\$
37	Sanitary Sewer, PVC, 24 inch	Ft	40	\$	\$
38	Sanitary Sewer, PVC, 27 inch	Ft	1048	\$	\$
39	Sanitary Sewer, PVC, 30 inch	Ft	668	\$	\$
40	Sanitary Sewer, PVC, 30 inch, Bore and Jack	Ft	190	\$	\$
41	Sanitary Sewer, PVC, 6 inch	Ft	100	\$	\$
42	Sanitary Sewer, PVC, 8 inch	Ft	1475	\$	\$
43	Sewer, Cl A, 12 inch, Tr Det B	Ft	1059	\$	\$
44	Sewer, Cl A, 24 inch, Tr Det B	Ft	105	\$	\$
45	Sewer, Cl A, 48 inch, Tr Det B	Ft	20	\$	\$
46	Sanitary Manhole, Drop Connection	Ea	2	\$	\$
47	Sewer Bulkhead	Ea	1	\$	\$
48	Dr Structure Cover, Adj, Case 1	Ea	5	\$	\$
49	Dr Structure, 48 inch dia	Ea	26	\$	\$
50	Dr Structure, 60 inch dia	Ea	5	\$	\$



51	Dr Structure, Tap, 8 inch	Ea	1	\$	\$
52	Dr Structure, Tap, 12 inch	Ea	1	\$	\$
53	Dr Structure, Temp Lowering	Ea	5	\$	\$
54	Dr Structure Cover, ADA Compliant	Ea	3	\$	\$
55	Dr Structure Cover, Modified	Ea	57	\$	\$
56	Sanitary Manhole, 48 inch Dia	Ea	25	\$	\$
57	Sanitary Manhole, 60 inch Dia	Ea	3	\$	\$
58	Sanitary Manhole, Meter Station, 84 inch Dia	Ea	1	\$	\$
59	HMA Approach	Ton	321	\$	\$
60	Textured Asphalt Crosswalk	Sft	1220	\$	\$
61	HMA, 13A	Ton	2074	\$	\$
62	Driveway, Nonreinf Conc, 6 inch	Syd	318	\$	\$
63	Curb and Gutter, Conc, Det F4	Ft	3643	\$	\$
64	Driveway Opening, Conc, Det M	Ft	242	\$	\$
65	Detectable Warning Surface	Ft	185	\$	\$
66	Curb Ramp Opening, Conc	Ft	279	\$	\$
67	Sidewalk Ramp, Conc, 6 inch	Sft	1382	\$	\$
68	Sidewalk, Conc, 4 inch	Sft	2454	\$	\$
69	Sign, Type III, Erect, Salv	Ea	2	\$	\$
70	Sign, Type III, Rem	Ea	2	\$	\$
71	Pavt Mrkg, Ovly Cold Plastic, 6 inch, Crosswalk	Ft	1146	\$	\$
72	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	Ft	176	\$	\$
73	Pavt Mrkg, Waterborne, 4 inch, White	Ft	50	\$	\$
74	Pavt Mrkg, Waterborne, 4 inch, Yellow	Ft	2740	\$	\$
75	Pavt Mrkg, Waterborne, 2nd Application, 4 inch, White	Ft	50	\$	\$
76	Pavt Mrkg, Waterborne, 2nd Application, 4 inch, Yellow	Ft	2740	\$	\$
77	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	Ea	38	\$	\$
78	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	Ea	38	\$	\$
79	Lighted Arrow, Type C, Furn	Ea	2	\$	\$

80	Lighted Arrow, Type C, Oper	Ea	2	\$	\$
81	Minor Traf Devices	LSUM	1	\$	\$
82	Plastic Drum, High Intensity, Furn	Ea	80	\$	\$
83	Plastic Drum, High Intensity, Oper	Ea	80	\$	\$
84	Sign, Portable, Changeable Message, Furn	Ea	2	\$	\$
85	Sign, Portable, Changeable Message, Oper	Ea	2	\$	\$
86	Sign, Type B, Temp, Prismatic, Furn	Sft	588	\$	\$
87	Sign, Type B, Temp, Prismatic, Oper	Sft	588	\$	\$
88	Pollinator Tree, Coral Burst Crabapple, 6 foot	Ea	16	\$	\$
89	Pollinator Tree, Kwanzan Cherry, 6 foot	Ea	16	\$	\$
90	Turf Establishment, Performance	Syd	3932	\$	\$
91	Abandon Existing 16 inch Water Main	Ft	1165	\$	\$
92	Water Main, DI, 12 inch, Tr Det G	Ft	30	\$	\$
93	Water Main, DI, 16 inch, Tr Det G	Ft	848	\$	\$
94	Water Main, DI, 6 inch, Tr Det G	Ft	50	\$	\$
95	Water Main, DI, 8 inch, Tr Det G	Ft	265	\$	\$
96	Water Main, Fusible PVC, 16 inch, Tr Det G	Ft	315	\$	\$
97	Fire Hydrant	Ea	1	\$	\$
98	Fire Hydrant, Rem	Ea	1	\$	\$
99	Gate Valve and Box, 12 inch, Modified	Ea	1	\$	\$
100	Gate Valve and Box, 6 inch, Modified	Ea	1	\$	\$
101	Gate Valve and Box, 8 inch, Modified	Ea	2	\$	\$
102	Gate Valve and Box, 16 inch, Modified	Ea	7	\$	\$
103	Water Main Fitting, 12 inch, 45 Deg Bend	Ea	3	\$	\$
104	Water Main Fitting, 12 inch, Cap Off	Ea	2	\$	\$
105	Water Main Fitting, 12 inch, Sleeve	Ea	2	\$	\$
106	Water Main Fitting, 16 inch x 12 inch, Reducer	Ea	1	\$	\$
107	Water Main Fitting, 16 inch x 12 inch, Tee	Ea	1	\$	\$
108	Water Main Fitting, 16 inch x 16 inch, Tee	Ea	2	\$	\$

109	Water Main Fitting, 16 inch x 6 inch, Tee	Ea	1	\$	\$
110	Water Main Fitting, 16 inch x 8 inch, Reducer	Ea	1	\$	\$
111	Water Main Fitting, 16 inch x 8 inch, Tee	Ea	2	\$	\$
112	Water Main Fitting, 16 inch, 45 Deg Bend	Ea	12	\$	\$
113	Water Main Fitting, 16 inch, Cap Off	Ea	4	\$	\$
114	Water Main Fitting, 16 inch, Sleeve	Ea	3	\$	\$
115	Water Main Fitting, 6 inch, 45 Deg Bend	Ea	2	\$	\$
116	Water Main Fitting, 6 inch, Cap Off	Ea	2	\$	\$
117	Water Main Fitting, 6 inch, Sleeve	Ea	1	\$	\$
118	Water Main Fitting, 8 inch x 6 inch, Reducer	Ea	1	\$	\$
119	Water Main Fitting, 8 inch, 45 Deg Bend	Ea	2	\$	\$
120	Water Main Fitting, 8 inch, Sleeve	Ea	1	\$	\$
121	Water Main, Connect to Existing	Ea	9	\$	\$

Total Amount (numbers) \$ \_\_\_\_\_

Total Amount (words) \_\_\_\_\_ dollars.

5. Bidder agrees that the Work will be substantially complete on or before October 11, 2020, and completed and ready for final payment in accordance with Paragraph 14.07 of Section 00700: General Conditions on or before October 31, 2020. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.
6. The following documents are attached to and made a condition of this bid:
  - A. Required bid security.
  - B. Required Certification Regarding Debarment, Suspension, and Other Responsibility Matters form.
  - C. Required DBE Utilization Good Faith Efforts worksheet.
7. Communications to Bidder concerning this Bid shall be addressed to the address indicated below.
8. The terms used in this Bid which are defined in the General Conditions of the construction Contract, included as part of the Contract Documents, have the meanings assigned to them in Section 00700: General Conditions.

SUBMITTED on \_\_\_\_\_, 20 \_\_\_\_  
 Date\*

BY: \_\_\_\_\_  
 Name of Bidder\*

\_\_\_\_\_  
 Street\*

\_\_\_\_\_  
 Signature

\_\_\_\_\_  
 City, State, and Zip\*

\_\_\_\_\_  
 Name and Title of Signatory\*

\_\_\_\_\_  
 Telephone Number\*

\*Typed or printed in ink.

END OF SECTION

SECTION 00410

BID BOND

OWNER:

Address:

City, State, Zip:

Bid Due Date:

Project:

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the following terms hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

Surety (Principal Place of Business):

Bidder:

\_\_\_\_\_  
Name of Surety\*

\_\_\_\_\_  
Name of Bidder\*

\_\_\_\_\_  
Street\*

\_\_\_\_\_  
Street\*

\_\_\_\_\_  
City, State, Zip\*

\_\_\_\_\_  
City, State, Zip\*

\_\_\_\_\_  
Surety's Corporate Seal (Seal)

\_\_\_\_\_  
Bidder's Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature and Title

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

Attest: \_\_\_\_\_  
Signature and Title

Attest: \_\_\_\_\_  
Signature and Title

\*Typed or printed in ink.

Bond:

Bond Number: \_\_\_\_\_

Date (not later than Bid Due Date): \_\_\_\_\_

Penal Sum: \_\_\_\_\_

Note: (1) Above addresses are to be used for giving required notice.  
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents and Contract Documents.

3. This obligation shall be null and void if:

OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extensions thereof agreed to in writing by OWNER) the Agreement required by the Bidding Documents and any performance any payment bonds required by the Bidding Documents and Contract Documents, or

All Bids are rejected by OWNER, or

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 and any 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 time for issuing notice of award including extension 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 Bid Due Date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the states in which the Project is located.

8. Notice 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 attach 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 the Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

END OF SECTION

## SECTION 00500

### AGREEMENT

THIS AGREEMENT is dated as of the \_\_\_\_\_ day of \_\_\_\_\_ in the year 2019 by and between City of Muskegon (hereinafter called OWNER) and \_\_\_\_\_ (hereinafter called CONTRACTOR). OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

#### ARTICLE 1 - WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Spring Street Sewer Reroute and Bourdon Street Alley Sewer.

#### ARTICLE 2 - ENGINEER

The Project has been designed by Eng., Inc., Grand Haven, Michigan, who is hereinafter called ENGINEER and who will act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

#### ARTICLE 3 - CONTRACT TIMES

3.1 The Work will be substantially complete on or before October 11, 2020, and completed and ready for final payment in accordance with Paragraph 14.07 of Section 00700: General Conditions on or before October 31, 2020.

3.2 Liquidated Damages: In accordance with City of Muskegon General Specifications.

#### ARTICLE 4 - CONTRACT PRICE

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents at the unit prices in CONTRACTOR's Bid.

#### ARTICLE 5 - PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of Section 00700: General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Application for Payment as recommended by ENGINEER, monthly during construction as provided in paragraphs 5.1.1 and 5.1.2 below. All such payments will be on the basis of the progress of the Work based on unit prices and quantities of Work completed.

5.1.1 Prior to Substantial completion, progress payments will be made in an amount equal to: 100 percent of the Work completed and 100 percent of materials and equipment not incorporated in the Work but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in paragraph 14.02 of Section 00700: General Conditions less the aggregate of payments previously made and less such amounts as ENGINEER should determine or OWNER may withhold, in accordance with Article 14 of Section 00700: General Conditions, except that OWNER will retain a portion of each progress payment limited to:

5.1.1.1 Not more than 10 percent of the dollar value of the work completed until 50 percent of the Work has been completed as determined by ENGINEER.

5.1.1.2 After the Work has been 50 percent completed as determined by ENGINEER, additional retainage will not be withheld unless OWNER determines that CONTRACTOR is not making satisfactory progress, or for other specific cause relating to CONTRACTOR's performance under the Contract. If the OWNER so determines, the OWNER may retain not more than 10 percent of the dollar value of the Work more than 50 percent completed.

5.1.2 Upon Substantial Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 95 percent of the Contract Price, less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with Article 14 of the General Conditions.

5.1.3 OWNER may deduct from progress payments amounts which are due to OWNER from CONTRACTOR in accordance with the Contract Documents.

5.1.4 After Substantial Completion, OWNER may, at OWNER's sole discretion, pay an amount sufficient to increase total payments to CONTRACTOR to more than 95 percent of the Contract Price (if OWNER has received consent of surety in a form acceptable to OWNER).

5.1.5 Progress payment shall not be due until 15 days after OWNER has received the funds with which to make the progress payment from a department or agency of the federal or state government, if any funds are to come from either of these sources.

5.2 The retained funds will not be commingled with other funds of OWNER and will be deposited in an interest bearing account in a regulated financial institution in this state where in all such retained funds are kept by OWNER which will account for both retainage and interest on each construction contract separately.

5.3 OWNER is not required to deposit retained funds in an interest bearing account if the retained funds are to be provided under a state or federal grant and the retained funds have not been paid to OWNER.

5.4 OWNER, at any time after 94 percent of Work under the Contract has been completed as determined by ENGINEER and at the request of CONTRACTOR, will release the retainage plus interest to the CONTRACTOR only if CONTRACTOR provides to OWNER an irrevocable letter of credit in the amount of the retainage plus interest, issued by a Bank authorized to do business in this state, containing terms mutually acceptable to CONTRACTOR and OWNER.

5.5 Unresolved disputes between OWNER and CONTRACTOR regarding retained funds and interest on retained funds shall be submitted to an agent in accordance with the dispute resolution process described in Section 4 of State of Michigan Act 524 of P.A. of 1980.

#### ARTICLE 6 - INTEREST

All moneys not paid when due as provided in Article 14 of Section 00700: General Conditions shall bear interest at the rate of 1 percent per month.

#### ARTICLE 7 - CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into the Agreement CONTRACTOR makes the following representations:

7.1 CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in paragraph 8) and the other related data identified in the Bidding Documents including technical data.

7.2 CONTRACTOR has visited the Site 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.

7.3 CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

7.4 CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) if identified in Section 00800: Supplementary Conditions as provided in paragraph 4.02.1 of Section 00700: General Conditions. CONTRACTOR accepts the determination set forth in paragraph SC-4.02 of Section 00800: Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in paragraph 4.02 of Section 00700: General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the Site.

7.5 CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are

necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

7.6 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.

7.7 CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

7.8 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, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

#### ARTICLE 8 - CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 8.1. CONTRACTOR's Bid dated \_\_\_\_\_.
- 8.2. Addenda \_\_\_\_ to \_\_\_\_, inclusive.
- 8.3. This Agreement.
- 8.4. Construction Performance Bond.
- 8.5. Construction Payment Bond.
- 8.6. General Conditions.
- 8.7. Supplementary Conditions.
- 8.8. Notice of Award
- 8.9. Notice to Proceed.
- 8.10. Project manual bearing the title:  
SPRING STREET SEWER REROUTE AND BOURDON STREET ALLEY SEWER  
MICHIGAN EGLE SRF PROJECT NO. 5675-01  
MICHIGAN EGLE DWRP PROJECT NO. 7449-01  
CITY OF MUSKEGON PROJECTS NO. S-91850 & S-91851  
and consisting of Sections and Divisions as listed in the Table of Contents thereof and dated May 2019.
- 8.11. Drawings, consisting of sheets as listed on the cover sheet bearing the following general title:  
SPRING STREET SEWER REROUTE AND BOURDON STREET ALLEY SEWER  
MICHIGAN EGLE SRF PROJECT NO. 5675-01  
MICHIGAN EGLE DWRP PROJECT NO. 7449-01  
CITY OF MUSKEGON PROJECTS NO. S-91850 & S-91851  
and dated May 2019.
- 8.12. Michigan EGLE Act 399 Permit for Water Supply Systems.
- 8.13. Michigan EGLE Act Part 41 Permit for Wastewater Systems.
- 8.14. Michigan Department of Transportation Right of Way Permit.
- 8.15. Muskegon County DPW SESC Permit.
- 8.16. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto:



- a. Written Amendments.
- b. Change Orders.

There are no Contract Documents other than those listed above in Article 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraph 3.04 of Section 00700: General Conditions.

#### ARTICLE 9 – MISCELLANEOUS

9.1. Terms used in the Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in Section 00700: General Conditions.

9.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are 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.

9.3. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

9.4. 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.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER.

CONTRACTOR:

OWNER:

By: \_\_\_\_\_  
Name of CONTRACTOR

City of Muskegon

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name and Title of Signatory\*

\_\_\_\_\_  
Name and Title of Signatory\*

Witness: \_\_\_\_\_

Witness: \_\_\_\_\_

Witness: \_\_\_\_\_

Witness: \_\_\_\_\_

Signed on \_\_\_\_\_, 20\_\_  
Date\*

Signed on \_\_\_\_\_, 20\_\_  
Date\*

\_\_\_\_\_  
Street\*

\_\_\_\_\_  
Street\*

\_\_\_\_\_  
City, State and Zip\*

\_\_\_\_\_  
City, State and Zip\*

\_\_\_\_\_  
Telephone Number\*

\_\_\_\_\_  
Telephone Number\*

\* typed or printed in ink.

END OF SECTION

SECTION 00610

CONSTRUCTION PERFORMANCE BOND

---

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

---

CONTRACTOR (Name and Address):

SURETY (Name and Principal Place of Business):

OWNER (Name and Address):

CONSTRUCTION CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Date (Not earlier than Construction Contract Date):

Amount:

Modifications to this Bond Form:

CONTRACTOR AS PRINCIPAL

Company:

SURETY

(Corp. Seal)

Company:

(Corp. Seal)

Signature:\_\_\_\_\_

Name and Title:

Signature:\_\_\_\_\_

Name and Title:

CONTRACTOR AS PRINCIPAL

Company:

SURETY

(Corp. Seal)

Company:

(Corp. Seal)

Signature:\_\_\_\_\_

Name and Title:

Signature:\_\_\_\_\_

Name and Title:

1. The CONTRACTOR and the 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 to participate in conferences as provided in Subparagraph 3.1.

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

- 3.1 The OWNER has notified the CONTRACTOR and the Surety at its address described in Paragraph 10 below, that the OWNER is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. 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; and
- 3.2 The OWNER has declared a Contractor Default and formally terminated the CONTRACTOR's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in Subparagraph 3.1; and
- 3.3 The OWNER has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the OWNER.

4. 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:

- 4.1 Arrange for the contractor, with consent of the OWNER, to perform and complete the Construction Contract; or
- 4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or
- 4.3 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 the contractor selected with the OWNER's 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 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR's default; or
- 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
  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, tender payment therefor to the OWNER; or
  2. Deny liability in whole or in part and notify the OWNER citing reasons therefor.

5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen 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 Subparagraph 4.4 and the OWNER refuses the payment tendered or the Surety had denied liability, in whole or in part, without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER.

6. After the OWNER has terminated the CONTRACTOR's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, 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. To the limit of the amount of this Bond, but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

- 6.1 The responsibilities of the CONTRACTOR for correction of defective work and completion of the Construction Contract;
- 6.2 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 4; and

- 6.3 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.
7. 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, or successors.
8. 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.
9. 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 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 period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the address shown on the signature page.
11. 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. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
- 12.1 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 to the CONTRACTOR of any amount 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.
- 12.2 Construction Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.
- 12.3 Contractor Default: Failure of the CONTRACTOR, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.
- 12.4 Owner Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY - Name, Address and Telephone)  
AGENT or BROKER:

OWNER's REPRESENTATIVE (Architect, Professional or other party):

END OF SECTION

SECTION 00620

CONSTRUCTION PAYMENT 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):

CONTRACT

Date:

Amount:

Description (Name and Location):

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 Payment 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:

1. CONTRACTOR and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to OWNER to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to OWNER, this obligation shall be null and void if CONTRACTOR:
  - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2. Defends, indemnifies, and holds harmless OWNER from all claims, demands, liens, or suits alleging non-payment by CONTRACTOR by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided OWNER has promptly notified CONTRACTOR and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to CONTRACTOR and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if CONTRACTOR promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1. Claimants who are employed by or have a direct contract with CONTRACTOR have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to OWNER, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2. Claimants who do not have a direct contract with CONTRACTOR:
    1. Have furnished written notice to CONTRACTOR and sent a copy, or notice thereof, to OWNER, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from CONTRACTOR, or not received within 30 days of furnishing the above notice any communication from CONTRACTOR by which CONTRACTOR had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to OWNER, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to CONTRACTOR.
5. If a notice by a Claimant required by Paragraph 4 is provided by OWNER to CONTRACTOR or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
  - 6.1. Send an answer to that Claimant, with a copy to OWNER, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  - 6.2. Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by OWNER to CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By CONTRACTOR furnishing and OWNER accepting this Bond, they agree that all funds earned by CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of CONTRACTOR and Surety under this Bond, subject to OWNER's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to OWNER, Claimants, or others for obligations of CONTRACTOR that are unrelated to the Contract. OWNER shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

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

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, 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.

12. Notice to Surety, OWNER, or CONTRACTOR shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, OWNER, or CONTRACTOR, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

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

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, CONTRACTOR shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions.

15.1. Claimant: An individual or entity having a direct contract with CONTRACTOR, or with a first-tier subcontractor of CONTRACTOR, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of CONTRACTOR and 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.

15.2. Contract: The agreement between OWNER and CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

15.3. Owner Default: Failure of OWNER, which has neither been remedied nor waived, to pay CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

END OF SECTION

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE  
*a practice division of the*  
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

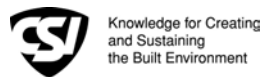
AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by



The Associated General Contractors of America



Construction Specifications Institute



Copyright ©2002

National Society of Professional Engineers  
1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies  
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers  
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

## TABLE OF CONTENTS

	<u>Page</u>
ARTICLE 1 - DEFINITIONS AND TERMINOLOGY .....	6
1.01 <i>Defined Terms</i> .....	6
1.02 <i>Terminology</i> .....	8
ARTICLE 2 - PRELIMINARY MATTERS .....	9
2.01 <i>Delivery of Bonds and Evidence of Insurance</i> .....	9
2.02 <i>Copies of Documents</i> .....	9
2.03 <i>Commencement of Contract Times; Notice to Proceed</i> .....	9
2.04 <i>Starting the Work</i> .....	9
2.05 <i>Before Starting Construction</i> .....	9
2.06 <i>Preconstruction Conference</i> .....	9
2.07 <i>Initial Acceptance of Schedules</i> .....	9
ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE .....	10
3.01 <i>Intent</i> .....	10
3.02 <i>Reference Standards</i> .....	10
3.03 <i>Reporting and Resolving Discrepancies</i> .....	10
3.04 <i>Amending and Supplementing Contract Documents</i> .....	11
3.05 <i>Reuse of Documents</i> .....	11
3.06 <i>Electronic Data</i> .....	11
ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS .....	11
4.01 <i>Availability of Lands</i> .....	11
4.02 <i>Subsurface and Physical Conditions</i> .....	12
4.03 <i>Differing Subsurface or Physical Conditions</i> .....	12
4.04 <i>Underground Facilities</i> .....	13
4.05 <i>Reference Points</i> .....	13
4.06 <i>Hazardous Environmental Condition at Site</i> .....	13
ARTICLE 5 - BONDS AND INSURANCE .....	14
5.01 <i>Performance, Payment, and Other Bonds</i> .....	14
5.02 <i>Licensed Sureties and Insurers</i> .....	15
5.03 <i>Certificates of Insurance</i> .....	15
5.04 <i>Contractor's Liability Insurance</i> .....	15
5.05 <i>Owner's Liability Insurance</i> .....	16
5.06 <i>Property Insurance</i> .....	16
5.07 <i>Waiver of Rights</i> .....	17
5.08 <i>Receipt and Application of Insurance Proceeds</i> .....	17
5.09 <i>Acceptance of Bonds and Insurance; Option to Replace</i> .....	17
5.10 <i>Partial Utilization, Acknowledgment of Property Insurer</i> .....	18
ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES .....	18
6.01 <i>Supervision and Superintendence</i> .....	18
6.02 <i>Labor; Working Hours</i> .....	18
6.03 <i>Services, Materials, and Equipment</i> .....	18
6.04 <i>Progress Schedule</i> .....	18
6.05 <i>Substitutes and "Or-Equals"</i> .....	19
6.06 <i>Concerning Subcontractors, Suppliers, and Others</i> .....	20
6.07 <i>Patent Fees and Royalties</i> .....	21
6.08 <i>Permits</i> .....	21
6.09 <i>Laws and Regulations</i> .....	21
6.10 <i>Taxes</i> .....	22
6.11 <i>Use of Site and Other Areas</i> .....	22
6.12 <i>Record Documents</i> .....	22
6.13 <i>Safety and Protection</i> .....	22
6.14 <i>Safety Representative</i> .....	23
6.15 <i>Hazard Communication Programs</i> .....	23

6.16	<i>Emergencies</i> .....	23
6.17	<i>Shop Drawings and Samples</i> .....	23
6.18	<i>Continuing the Work</i> .....	24
6.19	<i>Contractor's General Warranty and Guarantee</i> .....	24
6.20	<i>Indemnification</i> .....	24
6.21	<i>Delegation of Professional Design Services</i> .....	25
ARTICLE 7 - OTHER WORK AT THE SITE .....		25
7.01	<i>Related Work at Site</i> .....	25
7.02	<i>Coordination</i> .....	26
7.03	<i>Legal Relationships</i> .....	26
ARTICLE 8 - OWNER'S RESPONSIBILITIES .....		26
8.01	<i>Communications to Contractor</i> .....	26
8.02	<i>Replacement of Engineer</i> .....	26
8.03	<i>Furnish Data</i> .....	26
8.04	<i>Pay When Due</i> .....	26
8.05	<i>Lands and Easements; Reports and Tests</i> .....	26
8.06	<i>Insurance</i> .....	26
8.07	<i>Change Orders</i> .....	26
8.08	<i>Inspections, Tests, and Approvals</i> .....	26
8.09	<i>Limitations on Owner's Responsibilities</i> .....	27
8.10	<i>Undisclosed Hazardous Environmental Condition</i> .....	27
8.11	<i>Evidence of Financial Arrangements</i> .....	27
ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION.....		27
9.01	<i>Owner's Representative</i> .....	27
9.02	<i>Visits to Site</i> .....	27
9.03	<i>Project Representative</i> .....	27
9.04	<i>Authorized Variations in Work</i> .....	27
9.05	<i>Rejecting Defective Work</i> .....	27
9.06	<i>Shop Drawings, Change Orders and Payments</i> .....	28
9.07	<i>Determinations for Unit Price Work</i> .....	28
9.08	<i>Decisions on Requirements of Contract Documents and Acceptability of Work</i> .....	28
9.09	<i>Limitations on Engineer's Authority and Responsibilities</i> .....	28
ARTICLE 10 - CHANGES IN THE WORK; CLAIMS .....		28
10.01	<i>Authorized Changes in the Work</i> .....	28
10.02	<i>Unauthorized Changes in the Work</i> .....	29
10.03	<i>Execution of Change Orders</i> .....	29
10.04	<i>Notification to Surety</i> .....	29
10.05	<i>Claims</i> .....	29
ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK.....		30
11.01	<i>Cost of the Work</i> .....	30
11.02	<i>Allowances</i> .....	31
11.03	<i>Unit Price Work</i> .....	31
ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES .....		32
12.01	<i>Change of Contract Price</i> .....	32
12.02	<i>Change of Contract Times</i> .....	33
12.03	<i>Delays</i> .....	33
ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK.....		33
13.01	<i>Notice of Defects</i> .....	33
13.02	<i>Access to Work</i> .....	33
13.03	<i>Tests and Inspections</i> .....	33
13.04	<i>Uncovering Work</i> .....	34
13.05	<i>Owner May Stop the Work</i> .....	34
13.06	<i>Correction or Removal of Defective Work</i> .....	34
13.07	<i>Correction Period</i> .....	34
13.08	<i>Acceptance of Defective Work</i> .....	35
13.09	<i>Owner May Correct Defective Work</i> .....	35
ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION .....		36
14.01	<i>Schedule of Values</i> .....	36
14.02	<i>Progress Payments</i> .....	36
14.03	<i>Contractor's Warranty of Title</i> .....	37
14.04	<i>Substantial Completion</i> .....	37

14.05	<i>Partial Utilization</i> .....	38
14.06	<i>Final Inspection</i> .....	38
14.07	<i>Final Payment</i> .....	38
14.08	<i>Final Completion Delayed</i> .....	39
14.09	<i>Waiver of Claims</i> .....	39
ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION .....		39
15.01	<i>Owner May Suspend Work</i> .....	39
15.02	<i>Owner May Terminate for Cause</i> .....	39
15.03	<i>Owner May Terminate For Convenience</i> .....	40
15.04	<i>Contractor May Stop Work or Terminate</i> .....	40
ARTICLE 16 - DISPUTE RESOLUTION .....		41
16.01	<i>Methods and Procedures</i> .....	41
ARTICLE 17 - MISCELLANEOUS .....		41
17.01	<i>Giving Notice</i> .....	41
17.02	<i>Computation of Times</i> .....	41
17.03	<i>Cumulative Remedies</i> .....	41
17.04	<i>Survival of Obligations</i> .....	41
17.05	<i>Controlling Law</i> .....	41
17.06	<i>Headings</i> .....	41

## GENERAL CONDITIONS

### ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

---

#### 1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, 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 Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given 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 under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *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.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *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.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

administrative requirements and procedural matters applicable thereto.

44. *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 at the Site.

45. *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.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *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 any Subcontractor.

49. *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 those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times

but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following 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 requirements of and information in the Contract Documents and conformance with the design concept of the completed 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 Paragraph 9.09 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 14.04 or 14.05).



#### *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. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which 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. 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 Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### 2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### 2.03 *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 Agreement

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 Agreement. 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 Agreement, whichever date is earlier.

### 2.04 *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 the date on which the Contract Times commence to run.

### 2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents;

2. a preliminary Schedule of Submittals; and

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

### 2.06 *Preconstruction Conference*

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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

### 2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, 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. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### 3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual 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 Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, 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 Contract Documents.

#### 3.03 *Reporting and Resolving Discrepancies*

##### A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

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 knew or reasonably should have known thereof.

##### B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work

(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

### 3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, 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 Engineer's consultants, including electronic media editions; or

2. reuse any of 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 adaption by Engineer.

B. The prohibition 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.

### 3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's

sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

---

## ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

---

### 4.01 *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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities 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.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed 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 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; 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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

#### C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and

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 Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final 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

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous 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 shall not be responsible for the accuracy or completeness of any such information or data; 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 such information and data,
- b. locating all Underground Facilities shown or indicated in the Contract Documents,
- c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

#### B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will

promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

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

#### 4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities 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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) 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.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, either party may make a Claim therefor as provided in Paragraph 10.05.

F. 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. If Owner and Contractor cannot agree as to

entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, 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: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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 created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

---

## ARTICLE 5 - BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, 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 Documents. 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 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, 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 requirements of Paragraphs 5.01.B and 5.02.

#### 5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

#### 5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

#### 5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection

from claims set forth below which 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:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. 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; and

6. 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.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, 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;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;



3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, 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.

#### 5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full 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 interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any

deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies 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 of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, 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 Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, 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 as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, 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 utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.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, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

#### 5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

#### 5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract

Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, 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. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

#### 5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

### ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

---

#### 6.01 *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. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

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. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or

received from the superintendent shall be binding on Contractor.

#### 6.02 *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. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

#### 6.03 *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.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, 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.

#### 6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

#### 6.05 *Substitutes and "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 specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion 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, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, 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

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.

#### 2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. 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:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not 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

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

**B. Substitute Construction Methods or Procedures:** If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

**C. Engineer's Evaluation:** Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

**D. Special Guarantee:** Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

**E. Engineer's Cost Reimbursement:** Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the 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.

**F. Contractor's Expense:** Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 Concerning Subcontractors, Suppliers, and Others

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. 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 any right of Owner or Engineer to reject defective Work.

C. 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. 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 anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual

or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. 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.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, 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 such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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.

#### 6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 6.09 *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 knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *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.

#### 6.11 *Use of Site and Other Areas*

##### A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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 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 by or based upon Contractor's performance of the Work.

*B. Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other 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 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 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 property to stresses or pressures that will endanger it.

#### 6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

#### 6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. 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, 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 owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.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 (except damage or loss attributable to the fault of Draw-



ings or Specifications or to the acts or omissions of Owner or Engineer or , 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).

D. Contractor's duties and responsibilities for safety and for protection of the Work 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *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.

#### 6.15 *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.

#### 6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

##### 1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

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 6.17.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. 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 6.17.D.

B. 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. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

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 and approval of that 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 both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

#### *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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval 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 6.17.C.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's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

#### *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.

#### *6.18 Continuing the Work*

A. 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, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

#### *6.19 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 Related Entities shall be entitled to rely on representation of 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 or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

#### *6.20 Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, 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 respective consultants, agents, officers, directors, partners, or employees 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 6.20.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 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

#### 6.21 *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 law.

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, Shop Drawings 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 6.21, 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 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

---

## ARTICLE 7 - OTHER WORK AT THE SITE

---

### 7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. 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 their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, 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.

#### 7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

## ARTICLE 8 - OWNER'S RESPONSIBILITIES

---

### 8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

### 8.06 *Insurance*

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

### 8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

#### 8.09 *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.

#### 8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

#### 8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

### ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

---

#### 9.01 *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 Documents and will not be changed without written consent of Owner and Engineer.

#### 9.02 *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 9.09. 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.

#### 9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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.

#### 9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

#### 9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with 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, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

#### 9.07 *Determinations for Unit Price Work*

A. 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 Paragraph 10.05.

#### 9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show

partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

#### 9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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 14.07.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 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

### ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

---

#### 10.01 *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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *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 as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

#### 10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. 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; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *Notification to Surety*

A. If notice 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) is required by the provisions of any bond to be given to a surety, 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.

#### 10.05 *Claims*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

---

### 11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

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 at the Site. 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, 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 11.01.

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, 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 5.06.D), 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 telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

**B. 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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which 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 Paragraphs 11.01.A and 11.01.B.

**C. Contractor's Fee:** When all the Work 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 or when a Claim for an 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 12.01.C.

**D. Documentation:** Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, 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.

## 11.02 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

1. Contractor agrees that:

a. 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

b. 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

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

## 11.03 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. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 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; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor 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 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

### 12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an

allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* 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 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.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 Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

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 12.01.C.2.a through 12.01.C.2.e, inclusive.

### 12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted

by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

#### 12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 Price or the Contract Times, or both. 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.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is 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 described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

---

#### 13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

#### 13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

#### 13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

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 and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to

be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. 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, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, 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 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 Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. 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, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *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, 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.

#### 13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. 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 removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

#### 13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
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 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. 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) will be paid by Contractor.

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 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

#### 13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. 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) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### 13.09 *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 in accordance with Paragraph 13.06.A, 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, 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 13.09, 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. 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 13.09.

### ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

#### 14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

#### 14.02 *Progress Payments*

##### A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

##### B. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to 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 Documents; or

b. that 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 moneys 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

*C. Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

*D. Reduction in Payment*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. 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;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

*14.03 Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

*14.04 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 (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

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 tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

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. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and 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 14.04 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 5.10 regarding property insurance.

#### 14.06 *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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *Final Payment*

##### A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible 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.

##### B. *Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations



under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. 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 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

#### C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

#### 14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance

with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

### ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

---

#### 15.01 *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 notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

#### 15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety ) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. 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

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

#### 15.03 *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;

3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) 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 15.03.

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 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 - DISPUTE RESOLUTION

---

#### 16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

## ARTICLE 17 - MISCELLANEOUS

---

### 17.01 *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 to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### 17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents 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.

### 17.03 *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 Documents. 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.

### 17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### 17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

### 17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

## SECTION 00800

### SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement Section 00700: General Conditions (Standard General Conditions of the Construction Contract) and other provisions of the Contract Documents as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

The provisions of these Sections shall be complied with in addition to the provisions of Section 00700: General Conditions and Section 00800: Supplementary Conditions. If conflicts exist among these Sections, the stricter requirements, as determined by ENGINEER, shall govern.

All Articles: **The City of Muskegon General Specifications for Project Performance shall govern if any discrepancy exists in the Articles.**

#### ARTICLE 1 – DEFINITIONS

##### SC-1.01 Defined Terms

Add new paragraphs immediately after Paragraph 1.52 which are to read as follows:

1.55 Manufacturer – An individual, firm or corporation that manufactures, assembles or fabricates products.

1.56 Products – Systems, materials, manufactured units, equipment, components and accessories used in the Work.

#### ARTICLE 2 – PRELIMINARY MATTERS

##### SC-2.01 Delivery of Bonds and Evidence of Insurance

Delete Paragraph 2.01 and insert the following in its place:

2.01.1 When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER, with copies to each additional insured identified herein, certificates of insurance endorsements to CONTRACTOR's insurance policies, insurance policies (and other evidence of insurance which OWNER or any additional insured may reasonably request) which CONTRACTOR is required to purchase and maintain in accordance with Article 5.

#### ARTICLE 5 – BONDS AND INSURANCE

Article 5 shall be replaced with Paragraph 3.0.24 of the City of Muskegon General Specifications for Project Performance. Additional Insured to be identified on the certificates include:

- Eng., Inc.
- Soils & Structures, Inc.
- Muskegon County
- Michigan Department of Transportation
- Michigan EGLE

#### ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

##### SC-6.06 Concerning Subcontractors, Suppliers and Others

Add new Paragraph 6.06.H which is to read as follows:

OWNER or ENGINEER may furnish to any Subcontractor, Supplier or other person or organization, to the extent practicable, evidence of amounts paid to CONTRACTOR in accordance with CONTRACTOR's Application for Payment.

##### SC-6.08 Permits

Add the following at the end of Paragraph 6.08:

Additional provisions regarding permits and licenses are included in the General Requirements.

ARTICLE 7- OTHER WORK AT THE SITE

SC-7.02 Coordination

Add the following to the end of Article 7.02.A:

4. CONTRACTOR shall communicate with, schedule, and coordinate the work performed by others.

ARTICLE 14- PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02 Progress Payment

Add a new paragraph immediately after Paragraph 14.02.A.3 which is to read as follows:

4. CONTRACTOR shall indicate on the Application for Payment the amounts that are due to OWNER from CONTRACTOR in accordance with the Contract Documents and which amounts OWNER may deduct from the progress payment.

SC-14.02.B.5 Refusal to Recommend Payment

Add the following new paragraphs immediately after Paragraph 14.02.B.5.d which are to read as follows:

- e. CONTRACTOR has incurred liability for other costs in accordance with Contract Documents.
- f. Liability for liquidated damages has been incurred by CONTRACTOR.
- g. CONTRACTOR's failure to maintain record documents in accordance with Paragraph 6.19.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

Add a new paragraph immediately after Paragraph 15.02.A.4 that is to read as follows:

5. If CONTRACTOR has filed a bankruptcy petition and if neither CONTRACTOR nor trustee has either assumed or rejected this Contract within 30 days after the filing of the bankruptcy petition;

END OF SECTION

SECTION 00900

FORMS

The following forms are to be used during the project if needed:

- 00900.1 Notice of Award
- 00900.2 Work Change Directive
- 00900.3 Change Order
- 00900.4 Application for Payment
- 00900.5 Certificate of Substantial Completion
- 00900.6 Bulletin

END OF SECTION

SECTION 00900.1

NOTICE OF AWARD

Dated \_\_\_\_\_, 20\_\_

TO: \_\_\_\_\_  
(Successful Bidder)

ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

CONTRACT FOR Spring Street Sewer Reroute and Bourdon Street Alley Sewer.

You are notified that your Bid dated \_\_\_\_\_, 20\_\_, for the above Contract has been considered. You are the apparent Successful Bidder and have been awarded a Contract for the Spring Street Sewer Reroute and Bourdon Street Alley Sewer. The Contract Price of your Contract is \_\_\_\_\_ Dollars (\$\_\_\_\_\_).

Three copies of the proposed Project Manual accompany this Notice of Award.

You must comply with the following conditions precedent within 15 days of the date of this Notice of Award; that is, by \_\_\_\_\_, 20\_\_.

1. You must deliver to the OWNER three fully executed counterparts of the Agreement included in the Project Manual. Each of the Agreements must bear your signature at the designated location.
  2. You must deliver with the executed Agreement the contract Security (Bonds) as specified in the Instructions to Bidders and Section 00700: General Conditions (paragraph 5.1) and Section 00800: Supplementary Conditions (paragraph SC-5.1.).
  3. You must also deliver with the executed Agreement the insurance documents specified in Article 5 of Section 00700: General Conditions and Article 5 of Section 00800: Supplementary Conditions.
  4. (List other conditions precedent).
- \_\_\_\_\_
- \_\_\_\_\_

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid abandoned, to annul this Notice of Award and to declare your Bid Security forfeited.

Within 10 days after you comply with those conditions, OWNER will return to you one fully signed counterpart of the Agreement included in the Project Manual.

City of Muskegon

\*Typed or Printed in ink

Copy to ENGINEER

By \_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(\*Name and Title)

ACCEPTANCE OF AWARD:

By: \_\_\_\_\_  
(\*Contractor)

\_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(\*Name and Title)

\_\_\_\_\_  
(\*Date)

END OF SECTION



SECTION 00900.2

WORK CHANGE DIRECTIVE

No. \_\_\_\_\_

DATE OF ISSUANCE \_\_\_\_\_ EFFECTIVE DATE \_\_\_\_\_

OWNER \_\_\_\_\_

CONTRACTOR \_\_\_\_\_

Contract: \_\_\_\_\_

Project: \_\_\_\_\_

OWNER's Contract No. \_\_\_\_\_ ENGINEER's Project No. \_\_\_\_\_

You are directed to proceed promptly with the following change(s):

Description:

Purpose of Work Change Directive:

Attachments: (List documents supporting change)

If OWNER or CONTRACTOR believes that the above change has affected Contract Price, any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Contract Documents.

Method(s) of determining change in Contract Price:

\_\_\_\_\_ Unit Prices  
\_\_\_\_\_ Lump Sum  
\_\_\_\_\_ Cost of the Work

Estimated increase (decrease) in Contract Price:

Estimated increase (decrease) in Contract Times:

\$ \_\_\_\_\_

If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Substantial Completion: \_\_\_\_\_ days.

Ready for final payment: \_\_\_\_\_ days.

RECOMMENDED:

AUTHORIZED:

ENGINEER \_\_\_\_\_

OWNER \_\_\_\_\_

By: \_\_\_\_\_

By: \_\_\_\_\_

END OF SECTION

SECTION 00900.3

CHANGE ORDER

No. 1

DATE OF ISSUANCE \_\_\_\_\_ EFFECTIVE DATE \_\_\_\_\_

OWNER \_\_\_\_\_  
CONTRACTOR \_\_\_\_\_  
Contract: \_\_\_\_\_  
Project: \_\_\_\_\_  
OWNER's Contract No. \_\_\_\_\_ ENGINEER's Contract No. \_\_\_\_\_  
ENGINEER \_\_\_\_\_

You are directed to make the following changes in the Contract Documents:  
Description:

Reason for Change Order:

Attachments: (List documents supporting change)

CHANGE IN CONTRACT PRICE:
Original Contract Price \$ _____
Net Increase (Decrease) from previous Change Orders No. ____ To: ____ \$ _____
Contract Price prior to this Change Order: \$ _____
Net increase (decrease) of this Change Order: \$ _____
Contract Price with all approved Change Orders: \$ _____

CHANGE IN CONTRACT TIMES:
Original Contract Times: Substantial Completion: _____ Ready for final payment: _____ (days or dates)
Net change from previous Change Orders No. ____ To No: ____ Substantial Completion: _____ Ready for final payment: _____ (days)
Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____ (days or dates)
Net increase (decrease) this Change Order: Substantial Completion: _____ Ready for final payment: _____ (days)
Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____ (days or dates)

RECOMMENDED:

APPROVED:

ACCEPTED:

By: \_\_\_\_\_  
ENGINEER (Authorized Signature)

By: \_\_\_\_\_  
OWNER (Authorized Signature)

By: \_\_\_\_\_  
CONTRACTOR (Authorized Signature)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

END OF SECTION

SECTION 00900.4

APPLICATION FOR PAYMENT NO.

To: \_\_\_\_\_ (OWNER)  
From: \_\_\_\_\_ (CONTRACTOR)  
Contract: \_\_\_\_\_  
Project: \_\_\_\_\_  
OWNER's Contract No. \_\_\_\_\_ ENGINEER's Project No. \_\_\_\_\_  
For Work accomplished through the date of : \_\_\_\_\_

1. Original Contract Price:	_____
2. Net change by Change Orders and Written Amendments (+ or -):	_____
3. Current Contract Price ( 1 plus 2)	_____ \$0.00
4. Total completed and stored to date:	_____
5. Retainage (per Agreement):	_____
___% of completed Work:	_____
___% of stored material:	_____
Total Retainage: \$0.00	_____
6. Total completed and stored to date less retainage (4 minus 5):	_____ \$0.00
7. Less previous Application for Payments:	_____
8. <b>DUE THIS APPLICATION (6 MINUS 7):</b>	_____ \$0.00

Accompanying documentation: \_\_\_\_\_

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by prior Applications for Payment numbered 1 through \_\_\_ inclusive; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (3) all Work covered by this Application for payment is in accordance with the Contract Documents and not defective.

Dated \_\_\_\_\_

\_\_\_\_\_  
CONTRACTOR

State of \_\_\_\_\_

County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ Day of \_\_\_\_\_

\_\_\_\_\_  
Notary Public

My Commission expires: \_\_\_\_\_

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated \_\_\_\_\_

\_\_\_\_\_  
ENGINEER

By: \_\_\_\_\_

END OF SECTION

SECTION 00900.5

CERTIFICATE OF SUBSTANTIAL COMPLETION

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance, warranties and guarantees shall be as follows:

OWNER: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

The following documents are attached to and made a part of this Certificate:

*For items to be attached, see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.*

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release on CONTRACTOR's obligation to complete the work in accordance with the Contract Documents.

Executed by the ENGINEER on:

\_\_\_\_\_  
Date

\_\_\_\_\_  
ENGINEER

By: \_\_\_\_\_

(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on:

\_\_\_\_\_  
Date

\_\_\_\_\_  
CONTRACTOR

By: \_\_\_\_\_

(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on:

\_\_\_\_\_  
Date

\_\_\_\_\_  
OWNER

By: \_\_\_\_\_

(Authorized Signature)

END OF SECTION

SECTION 00900.6

BULLETIN

No. \_\_\_\_\_

PROJECT: \_\_\_\_\_ DATE OF ISSUANCE: \_\_\_\_\_

OWNER:

(Name, Address)

CONTRACTOR: \_\_\_\_\_ OWNER's Project No. \_\_\_\_\_

ENGINEER: \_\_\_\_\_

CONTRACT FOR: \_\_\_\_\_ ENGINEER's Project No. \_\_\_\_\_

---

This is not a Change Order to the Contract. We are requesting a quotation for possible work to be performed.

Description:

Purpose of Bulletin:

Attachments: (list documents supporting possible change)

---

CHANGE IN CONTRACT PRICE:

CHANGE IN CONTRACT TIME:

Net Increase (decrease) of this Bulletin:

Net Increase (decrease) of this Bulletin:

\$ \_\_\_\_\_

Day \_\_\_\_\_

PROPOSED:

By \_\_\_\_\_

CONTRACTOR

END OF SECTION

City of Muskegon  
SRF Project No. 5675-01  
DWRP Project No. 7449-01  
Eng. Project No. 18051.00

Addendum  
Section 00920

SECTION 00920

ADDENDUM

City of Muskegon  
1360 E. Keating Avenue  
Muskegon, MI 49442

ADDENDUM NO. \_\_\_\_\_

DATE: \_\_\_\_\_

ENGINEER: Eng., Inc.  
4063 Grand Oak Drive, Suite A109  
Lansing, MI 48911

Drawing Revision No: \_\_\_\_\_

Drawing Sheets Issued Herewith: \_\_\_\_\_

Bids Due: \_\_\_\_\_ Issued to all Plan Holders

---

This Addendum is part of the Contract Documents and modifies the previously issued Bidding Documents. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may result in rejection of the Bid.

ITEM NO. 1

SECTION: \_\_\_\_\_ [TITLE] \_\_\_\_\_

[PARAGRAPH] \_\_\_\_\_

[PARAGRAPH] \_\_\_\_\_

END OF SECTION

SECTION 00954

NOTICE TO PROCEED

DATED: \_\_\_\_\_, 20\_\_

TO: \_\_\_\_\_  
(Bidder)

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

CONTRACT FOR Spring Street Sewer Reroute and Bourdon Street Alley Sewer.

You are notified that the Contract Time under the above Contract will commence to run on \_\_\_\_\_, 20\_\_. By that date you are to start performing your obligations under the Contract Documents. In accordance with Article 3 of the Agreement the dates of Substantial Completion and Final Completion are October 11, 2020 and October 31, 2020 respectively.

Also before you may start any work at the Site, you must

(Add other requirements)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

City of Muskegon

By: \_\_\_\_\_  
(Authorized Signature)

\_\_\_\_\_  
(\*Name and Title)

\*Typed or printed in ink  
Copy to ENGINEER

END OF SECTION

## SECTION 01010

### SUMMARY OF WORK

#### PART 1 - GENERAL

##### 1.01 WORK COVERED BY CONTRACT DOCUMENTS:

- A. The Work covered by Contract Documents comprises construction of Spring Street Sewer Reroute and Bourdon Street Alley Sewer for the City of Muskegon, OWNER.
- B. The Work includes, but is not limited to, the major items listed in Section 00314: Bid.

##### 1.02 TYPE OF CONTRACT:

- A. Construct the Work of this Contract under a single unit price contract.

##### 1.03 GENERAL:

- A. Imperative language:
  - 1. These Specifications (Divisions 1 through 16) are written in the imperative and abbreviated form. This imperative language of the technical specifications is directed at CONTRACTOR unless specifically noted otherwise. Incomplete sentences shall be completed by inserting “shall”, “shall be” and similar mandatory phrases by inference in the same manner as they are applied to notes on Drawings. The words “shall”, “shall be” and similar mandatory phrases shall be supplied by inference where a colon (:) is used within sentences or phrases. Except as worded to the contrary, fulfill (perform) all indicated requirements whether stated in the imperative or otherwise.
- B. Related Sections:
  - 1. Some Sections of these Specifications (Divisions 1 through 16) may include a paragraph titled “Related Sections”. This paragraph is an aid to the project Manual user and is not intended to include all Sections which may be related. It is CONTRACTOR’s obligation to coordinate all Sections whether indicated under “Related Sections” or not.
- C. Reference to Section 00700: General Conditions:
  - 1. In Divisions 1 through 16, a reference to Section 00700: General Conditions includes by inference all amendments or supplements in Section 00800: Supplementary Conditions.

##### 1.04 WORK UNDER OTHER CONTRACTS:

- A. OWNER will award Contracts for furnishing and installation of the following work:
  - 1. Other projects part of the Michigan EGLE Project No. 5675-01.
- B. Coordinate the schedule of Work under other contracts with OWNER and other contractors.
- C. Cooperate with all contractors performing Work on the Site.
- D. Copies of Contract Documents for Work under separate contracts are available for review at ENGINEER’s office.

##### 1.05 CONTRACTOR USE OF PREMISES:

- A. Limit construction traffic access to Site from public Rights of Way only.
- B. Except in connection with the safety or protection of persons or the Work or property at the Site or adjacent thereto, all Work at the Site shall be restricted to the following hours.
  - 1. Monday through Friday (except legal holidays): 7:00 a.m. to 7:00 p.m.
  - 2. Saturday, Sundays or legal holidays with written approval of OWNER.
- C. Private easements:
  - 1. Any agreement made by CONTRACTOR with any property owner that extends the rights as granted under an easement obtained by OWNER or that provides for an additional easement shall be obtained by CONTRACTOR at CONTRACTOR’s expense and shall in no way be binding upon OWNER. CONTRACTOR shall defend and hold OWNER and ENGINEER harmless against any



action that may arise from activities conducted pursuant to such additional agreements or easements. Unless relieved of responsibility for surface restoration in writing by property owner, CONTRACTOR shall restore areas covered by separate agreements substantially the same as similar areas within the Project.

1.06 OCCUPANCY REQUIREMENTS:

- A. OWNER occupancy during construction:
  - 1. OWNER will occupy or utilize premises during entire period of construction, for conduct of his normal operations. Cooperate with ENGINEER to minimize conflict and to facilitate OWNER's operations.
  - 2. Access to abutting properties: Provide at all times.
  - 3. Access for emergency vehicles:
    - a. Provide at all times.
    - b. Provide at least one clear lane during nonwork periods.
  - 4. Fire hydrants: Provide access to at all times.
  - 5. Do not block fire access routes.
  - 6. Detours and street closure: When provided for in the Contract Documents or approved by ENGINEER. Routes and barricades as indicated or as approved by road authority.
  - 7. Limit parking for construction vehicles to an area designated by OWNER.

1.07 WORK SEQUENCE:

- A. Coordinate construction schedule and operations with ENGINEER.
- B. Sequence submittal:
  - 1. The sequence indicated on the Drawings and in the Special Provisions is offered as a suggestion to CONTRACTOR.
  - 2. Submit a proposed sequence with appropriate times of starting and completion of tasks to ENGINEER for review and approval.

PART 2 - PRODUCTS

2.01 OTHER MATERIALS:

- A. General:
  - 1. All other materials which are not specified herein and are not indicated on the Drawings, but are required for proper and complete performance of the Work.
- B. Procedure:
  - 1. Select new, first quality materials.
  - 2. Obtain ENGINEER's review.
  - 3. Provide and install.

PART 3 - EXECUTION

Not used.

END OF SECTION

## SECTION 01012

### STAKING AND INSPECTION SERVICES

#### PART 1 - GENERAL

##### 1.01 SUMMARY:

- A. Section includes:
  - 1. This Section includes, but is not necessarily limited to, staking and inspection services to be provided by ENGINEER and others as indicated on the Drawings, as specified herein, and as necessary for the proper and complete performance of the Work.
  - 2. Related Sections:
    - a. Documents affecting work of this Section include but are not necessarily limited to:
      - i. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

##### 1.02 PROJECT LAYOUT:

- A. Responsibilities:
  - 1. ENGINEER will furnish stakes as follows:
    - a. For wastewater and storm sewers, line and grade stakes:
      - i. At manhole.
      - ii. At 50, 100, 200 and 300 feet upstream from manholes.
      - iii. At mid-point between manholes.
    - b. For water mains and pumping mains, line stakes:
      - i. At intervals of approximately 300 feet.
      - ii. At other locations generally required to aid the construction.
      - iii. Grades will be established at critical locations only.
    - c. For street, line and grade stakes:
      - i. At intervals of 50 feet.
      - ii. At all P.I., P.C. and side street centerlines.
      - iii. As needed at critical locations.
  - 2. Provide ENGINEER 2 working days' notice to schedule staking.
- B. Expense:
  - 1. Staking described above will be authorized by and paid for by OWNER.
  - 2. Restaking or staking in excess of that described above will be at the expense of CONTRACTOR.

##### 1.03 CONSTRUCTION INSPECTION:

- A. By Eng., Inc.:
  - 1. Resident Project Representatives: In accordance with Section 00700: General Conditions.
  - 2. Expense:
    - a. Paid by OWNER with amounts for additional inspection costs deducted from payment or payments to CONTRACTOR in accordance with Section 01700: Contract Closeout.
- B. By OWNER:
  - 1. Periodic site visits.
  - 2. Expense: By OWNER.
- C. By MDOT:
  - 1. Periodic site visits.
  - 2. Expense: By agency.
- D. By Michigan Department of Environmental Quality (DEQ):
  - 1. Periodic site visits.
  - 2. Expense: By agency.

City of Muskegon  
SRF Project No. 5675-01  
DWRP Project No. 7449-01  
Eng. Project No. 18051.00

Staking and Inspection Services  
Section 01012

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

## SECTION 01035

### MODIFICATION PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SUMMARY:

- A. Section includes:
  - 1. This Section includes, but is not necessarily limited to, procedures for modifying the Contract Documents, as herein specified and as necessary for the proper and complete performance of the Work.
  - 2. Procedures for the following documents are included:
    - a. Bulletin.
  - 3. Procedures for the following documents shall be in accordance with Section 00700: General Conditions:
    - a. Field Order.
    - b. Work Change Directive.
    - c. Change Order.
- B. Related Sections:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to:
    - a. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

##### 1.02 DEFINITIONS:

- A. Bulletin:
  - 1. A document regarding possible changes to the Contract Documents which is issued by ENGINEER for OWNER and requests add or deduct costs from CONTRACTOR.

##### 1.03 BULLETIN:

- A. Changes in cost:
  - 1. Indicate add or deduct lump sum or unit price for each item.
  - 2. Include:
    - a. Labor.
    - b. Material.
    - c. Overhead and profit.
    - d. All related work.
    - e. All trades and Subcontractors.
  - 3. Provide a complete cost breakdown with supporting documentation.
- B. Notification to ENGINEER:
  - 1. Notify ENGINEER in writing if any of the listed items will cause a change in the Work for which a cost item is not provided in the Bulletin.
- C. Submit:
  - 1. Under provisions of Section 01300: Submittals.
  - 2. Three copies.
  - 3. To ENGINEER.
  - 4. On or before due date noted.
- D. OWNER: May issue one or more Change Orders for some or all items listed.

#### PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

3.01 SCHEDULES:

- A. Refer to Section 00900: Forms for the following forms:
  - 1. Bulletin.
  - 2. Work Change Directive.
  - 3. Change Order.

END OF SECTION

## SECTION 01200

### MEETINGS

#### PART 1 - GENERAL

##### 1.01 SUMMARY:

- A. Section includes:
  - 1. This Section includes all scheduling and administering of preconstruction and progress meetings as herein specified and as necessary for the proper and complete performance of the Work.
- B. Related Sections:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to:
    - a. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
- C. Scheduling and administration of meetings:
  - 1. Responsibility:
    - a. Preconstruction meeting: ENGINEER.
    - b. Progress meetings: ENGINEER.
  - 2. Procedures:
    - a. Prepare agenda.
    - b. Distribute written notice and agendas of meetings 4 days in advance of the meeting date.
    - c. Make physical arrangements for the meetings.
    - d. Preside at meetings.
    - e. Record minutes and include significant proceedings and decisions.
    - f. Distribute copies of the minutes within 4 days after meetings to:
      - i. Participants.
      - ii. Others affected by proceedings.

##### 1.02 PRECONSTRUCTION MEETING:

- A. Schedule:
  - 1. Preconstruction meeting will be scheduled by ENGINEER:
    - a. Within 20 days after the Effective Date of Agreement.
    - b. Before starting the Work at the Site.
- B. Attendance:
  - 1. Representatives of the following parties are to be in attendance at the meeting:
    - a. OWNER.
    - b. ENGINEER.
    - c. CONTRACTOR.
    - d. Major subcontractors.
    - e. Governmental or regulatory agencies when appropriate.
    - f. Utility companies.

##### 1.03 PROGRESS MEETINGS:

- A. Types of progress meetings:
  - 1. Regular.
  - 2. Called.
- B. Schedule meetings as follows unless otherwise approved by ENGINEER:
  - 1. Regular: Monthly during construction.
  - 2. Called: As the progress of the Work dictates.
- C. Location:
  - 1. Hold meetings at project site or as indicated in the notice.

- D. Attendance:
1. Representatives of the following parties are to be in attendance at the meeting:
    - a. ENGINEER.
    - b. CONTRACTOR.
    - c. Major subcontractors as pertinent to the agenda.
    - d. OWNER's representative as appropriate.
    - e. Governmental or other regulatory agencies as appropriate.
- E. Minimum agenda:
1. The minimum agenda for progress meetings shall consist of the following:
    - a. Review and approve minutes of previous meetings.
    - b. Review progress of the Work since the previous meeting.
    - c. Note field observations, problems and decisions.
    - d. Identify problems which impede planned progress.
    - e. Review off-site fabrication problems.
    - f. Develop corrective measures and procedures to regain plan schedule.
    - g. Revise construction schedule as indicated.
    - h. Review submittal schedules; expedite as required to maintain schedule.
    - i. Maintenance of quality and work standards.
    - j. Review changes proposed by OWNER for their effect on the construction schedule and completion date.
    - k. Identify all claims and potential claims.
    - l. Pending changes and substitutions.
    - m. Complete other current business.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

## SECTION 01300

### SUBMITTALS

#### PART 1 - GENERAL

##### 1.01 SUMMARY:

- A. Section includes: This Section includes, but not necessarily limited to, the submittal of Shop Drawings. Samples and other information as indicated on the Drawings, as specified herein, and as necessary for the proper and complete performance of the Work.
- B. Related Sections:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to:
    - a. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
    - b. Individual submittals required: Pertinent Sections of these Specifications.

#### PART 2 - PRODUCTS

##### 2.01 SUBMITTALS REQUIRING ENGINEER'S REVIEW AND RETURN:

- A. Drawings:
  - 1. Scale required: Unless otherwise specifically directed by ENGINEER, make all drawings accurately to a scale sufficiently large to indicate all pertinent features of the item and its method of connection to the Work.
  - 2. Type and number of prints required:
    - a. Submit the number of copies which are required to be returned plus 4.
- B. Manufacturer's literature and product data:
  - 1. General: Where content of submitted literature from Manufacturers includes data not pertinent to this submittal, clearly indicate which portion of the contents is being submitted for ENGINEER's review.
  - 2. Number of copies required: Submit the number of copies which are required to be returned plus 4.
- C. Calculations:
  - 1. Performance type design calculations: Shall be prepared and sealed by a Professional Engineer licensed in the state where the project is being constructed.
  - 2. Number of copies required: Submit the number of copies which are required to be returned plus 4.
- D. Samples:
  - 1. General:
    - a. Samples:
      - i. Illustrate materials, equipment and workmanship.
      - ii. Establish standards by which completed work is judged.
  - 2. Accuracy of Sample: Unless otherwise specifically directed by ENGINEER, all Samples shall be of the precise articles proposed to be furnished.
  - 3. Number of Samples required: Submit all Samples in the quantity which is required to be returned plus 1.
- E. Colors and patterns: Unless the precise color and pattern is specifically described in the Contract Documents, whenever a choice of color or pattern is available in a specified Product, submit accurate color charts and pattern charts to ENGINEER for review and selection.
- F. Manuals :
  - 1. General:
    - a. Where manuals are required to be submitted covering items included in this Work, prepare all such manuals in durable plastic binders approximately 8 ½ inches x 11 inches in size and with at least the following:



- i. Identification on, or readable through, the front cover stating general nature of the manual.
  - ii. Neatly typewritten index near the front of the manual.
  - iii. Complete instructions regarding operation and maintenance of all equipment involved.
  - iv. Complete nomenclature of all replaceable parts, their part numbers, current costs and name and address of nearest vendor of parts.
  - v. Copies of all guarantees and warranties issued.
  - vi. Copies of the reviewed drawings.
  - vii. Copies of all data concerning all changes made during construction.
2. Extraneous Data: Where contents of the manuals include Manufacturer's catalog pages. Clearly indicate the precise items included in this installation and delete or otherwise clearly indicate all Manufacturer's data with which this installation is not concerned.
3. Number of copies required: Unless otherwise specifically directed by ENGINEER or stipulated in the pertinent Section of these Specifications. Deliver 4 copies of the manual to ENGINEER.

2.02 SUBMITTALS NOT REQUIRING ENGINEER'S RETURN:

- A. General:
  1. Including, but not necessarily limited to:
    - a. Test Reports.
    - b. Certifications and affidavits.
    - c. Installation instructions.
  2. Number required: Submit 4 copies.

PART 3 - EXECUTION

3.01 SCHEDULE OF SUBMITTALS:

- A. Preparation and submittal of a schedule of submittals:
  1. Prepare and submit a schedule of submittals as required by Section 00700: General Conditions.
  2. The schedule of submittals shall include the following:
    - a. Shop Drawings.
    - b. Manufacturer's literature and product data.
    - c. Samples.
    - d. Colors and patterns.
    - e. Manuals.
    - f. Other submittals required by the Contract Documents.
  3. Allow at least 15 full working days for ENGINEER's review following ENGINEER's receipt of the submittal unless ENGINEER has agreed to a shorter period for specific submittals.
  4. Schedule submittals, except operation and maintenance manuals, far enough in advance of scheduled dates for installation to provide all required time for reviews for securing necessary approvals for possible revision and resubmittal, and for placing orders and securing delivery.
  5. Schedule submittal of operation and maintenance manuals at least 60 days prior to system Substantial Completion unless otherwise specified.
- B. Make all submittals in accordance with the schedule of submittals.
- C. Be responsible for costs of delays caused by tardiness of submittals.

3.02 COORDINATION OF SUBMITTALS:

- A. General:
  1. Prior to submittals for ENGINEER's review. Use all means necessary to fully coordinate all material including the following procedures.
    - a. Determine and verify all field dimensions and conditions, catalog numbers and similar data.
    - b. Coordinate as required with all trades and all public involved.

- c. Secure all necessary approvals from public agencies and others; signify by stamp or other means that all required approvals have been obtained.
- d. Clearly indicate all deviations from the Contract Documents.

B. Grouping of submittals:

- 1. Unless otherwise specifically permitted by ENGINEER, make all submittals in groups containing all associated items.
- 2. ENGINEER may reject partial submittals as not complying with the provisions of the Contract Documents.

3.03 IDENTIFICATION OF SUBMITTALS:

A. General:

- 1. Consecutively number all submittals.
- 2. Accompany each submittal with a letter of transmittal showing the following:
  - a. Project title and number.
  - b. OWNER.
  - c. Subcontractor.
  - d. Date of submittal.
  - e. Specification Section or Drawing number to which the submittal pertains.
  - f. Brief description of the material submitted.
  - g. Submittal identification number.
- 3. Mark each submittal with:
  - a. Company name of the originator of the submittal.
  - b. Deviations from Contract Documents.
  - c. CONTRACTOR's approval of the submittal.
  - d. Submittal identification number adjacent to CONTRACTOR's approval.

B. Resubmittal:

- 1. When material is resubmitted for any reason, transmit under a new letter of transmittal with a suffix added to the original submittal identification number.
- 2. Indicate that this is a resubmittal and refer to the previous submittal.

C. Submittal Log:

- 1. Maintain an accurate submittal log for the duration of the construction period showing the status of all submittals of all types.
- 2. Make the log available to ENGINEER for review upon request.

3.04 RETURN OF SUBMITTALS:

A. Submittals requiring ENGINEER review and return:

- 1. With status, "Rejected. Resubmit":
  - a. Drawings: ENGINEER will retain 1 copy and return the rejected copies to CONTRACTOR.
  - b. Manufacturer's literature and product data: ENGINEER will retain 1 copy and return remaining copies to CONTRACTOR.
  - c. Other submittals: ENGINEER will notify CONTRACTOR of rejection.
- 2. With status: "Reviewed. No Exceptions Taken" and "Reviewed w/Corrections Noted":
  - a. Drawings: ENGINEER will retain 4 copies and return the remaining copies to CONTRACTOR.
  - b. Manufacturer's literature and product data: ENGINEER will retain 4 copies and return the remaining copies to CONTRACTOR.
  - c. Samples: ENGINEER will retain 1 Sample and return the remaining Samples to CONTRACTOR.
  - d. Colors: ENGINEER will retain color charts and pattern charts and will indicate color and pattern choices to CONTRACTOR.

B. Submittals not requiring ENGINEER return: No copies will be returned.

3.05 RESUBMISSION REQUIREMENTS:

A. Drawings:

- 1. Revise initial drawings as required and resubmit as specified for initial submittal.

2. Indicate on drawings all changes which have been made other than those requested by ENGINEER.
  3. If the same drawings are submitted with additional data and revisions, clearly identify the added data and revisions on the drawings.
- B. Other submittals: Submit as required for initial submittal.
- 3.06 RE-REVIEW COST:
- A. Should ENGINEER be required to review a submittal more than twice because of failure of the submittal to meet the requirements of the Contract Documents, ENGINEER will record ENGINEER's expenses for performing all additional reviews. The OWNER will compensate ENGINEER for these additional services and deduct the amount paid from payments to CONTRACTOR.

END OF SECTION

## SECTION 01410

### TESTING SERVICES

#### PART 1 - GENERAL

##### 1.01 SUMMARY

###### A. Section Includes:

1. This section includes, but is not necessarily limited to, testing services, as indicated in the Drawings, as specified herein and as necessary for the proper and complete performance of the Work.
2. General requirements:
  - a. Testing services and certifications which are to be included in CONTRACTOR's unit prices:
    - i. Inspections and tests required by codes or ordinances or by a plan approval authority and made by a legally constituted authority.
    - ii. Inspections, testing services and certifications including, but not limited to, the following items shall be furnished by CONTRACTOR:
      - a) Pipe leakage tests.
      - b) Pipe material yield strength tests at ENGINEER's request.
      - c) Cement Manufacturers' certification tests at ENGINEER's request.
      - d) Fine and coarse aggregate certification tests by Supplier at ENGINEER's request
      - e) Bedding material certification tests by Supplier at ENGINEER's request.
      - f) Testing in connection with ENGINEER's review of materials and equipment proposed to be incorporated into the Work.
      - g) Testing performed for CONTRACTOR's convenience.
3. OWNER paid items:
  - a. OWNER may elect to test or to employ either ENGINEER or an independent testing agency to test any materials or systems on the Project. The cost of this testing will be paid for by OWNER.

###### B. Related Sections:

1. Documents affecting work of this Section include, but are not necessarily limited to:
  - a. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.
2. Additional requirements for testing of materials and systems mentioned in this Section may be described in other Sections of these Specifications.

##### 1.02 REFERENCES:

###### A. Except as herein specified or as indicated on the Drawings, the work of this Section shall comply with the following:

1. ASTM Standard Specifications:
  - a. C 31 – Making and Curing Concrete Test Specimens in the Field.
  - b. C 39 – Test for Compressive Strength of Cylindrical Concrete Specimens.
  - c. C 138 – Test for Unit Weight, Yield and Air Content of Concrete.
  - d. C 143 – Test for Slump of Hydraulic Cement Concrete.
  - e. C 172 – Sampling Fresh Concrete.
  - f. C 173 – Test for Air Content of Freshly Mixed Concrete by the Volumetric Method.
  - g. C 192 – Making and Curing Concrete Test Specimens in the Laboratory.
  - h. C 231- Test for Air Content of Freshly Mixed Concrete by the Pressure Method.
  - i. D 1556 – Density of Soil In Place by the Sand-Cone Method.
  - j. D 1557 – Moisture-Density Relations of Soils and Soils Aggregate Mixture Using 10 Pound Hammer and 18 Inch Drop.
  - k. D 1586 – Penetration Test and Split Barrel Sampling of Soils.
  - l. D 2166 – Unconfined Compressive Strength of Cohesive Soil.
  - m. D 2922 – Density of Soil and Soil Aggregates by Nuclear Methods.

- n. D 2937 – Density of Soil in Place by Drive Cylinder Method.
- 2. AWS – American Welding Society:
  - a. D1.1 – Structural Welding Code.
- 3. ACI – American Concrete Institute:
  - a. 211.1 – Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
  - b. 301 – Specification for Structural Concrete for Buildings.
  - c. 318 – Building Code Requirements for Reinforced Concrete.
  - d. 506R – Guide to Shotcrete.
- 4. BOCA Building Code.

1.03 TEST REQUIREMENTS:

- A. In accordance with:
  - 1. Laws and Regulations.
  - 2. Sections of these Specifications.
  - 3. Reference procedures and requirements.
  - 4. Pertinent standards for testing.
  - 5. BOCA Building Code.

1.04 COLLECTING AND TRANSPORTING SAMPLES:

- A. Samples:
  - 1. Collected by CONTRACTOR and transported by CONTRACTOR to a location determined by ENGINEER.

1.05 RETESTING COSTS:

- A. Retesting:
  - 1. When initial tests of all items except soil compaction indicate noncompliance with the Contract Documents, all subsequent testing occasioned by the noncompliance shall be performed by the same testing laboratory, and the costs thereof will be deducted by OWNER from the Contract Sum.
  - 2. The first retesting of soil compaction shall be paid for by OWNER. The second and subsequent retesting costs for soil compaction due to noncompliance with the Contract Documents shall be performed by the same laboratory, and the costs thereof will be deducted by OWNER from the Contract Sum.
- B. Costs:
  - 1. Uncovering costs shall be paid for as described in Article 13 of Section 00700: General Conditions.

1.06 REPORTS:

- A. Provide typed copies of all laboratory reports, inspections, and certifications:
  - 1. ENGINEER's office: Two copies.
  - 2. CONTRACTOR's office: One copy.

1.07 SCHEDULES FOR TESTING:

- A. Establishing schedule:
  - 1. By advance discussion with the independent testing laboratory, determine the time required to perform tests and issue findings.
- B. Revising schedule:
  - 1. When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the independent testing laboratory as required.
- C. Adherence to schedule:
  - 1. When the independent testing laboratory is ready to test according to the determined work schedule, but is prevented from testing or taking specimens due to incompleteness of Work, all extra costs for testing attributable to the delay may be charged to CONTRACTOR and shall not be borne by OWNER.

1.08 CONTRACTOR'S DUTIES:

- A. Coordinate and schedule the work of the independent testing laboratory:

1. Notify ENGINEER and the independent testing laboratory 24 hours prior to expected time when testing services will be required.
2. Provide the following as necessary for laboratory to properly perform its functions:
  - a. Access to the Work.
  - b. Facilities for access to the Work.
  - c. Tools.
  - d. Samples of materials.
  - e. Storage.
  - f. Assistance as requested.

## PART 2 - PRODUCTS

Not used.

## PART 3 - EXECUTION

### 3.01 TESTING REQUIREMENTS:

- A. Fine and coarse aggregate and bedding material:
  1. Test to ensure compliance with the materials specifications, at the request of ENGINEER.
- B. Fill material from on-site and off-site:
  1. Test to ensure compliance with the materials specifications.
- C. Soil Compaction:
  1. Perform all necessary laboratory and field testing required to verify compaction of fill, trench backfill, and structure of backfill to 95 percent Modified Proctor in accordance with ASTM D 1557.
  2. Verify the compaction of the first 12 inches of the existing subgrade below all structures, paved areas and areas to be filled to 95 percent Modified Proctor in accordance with ASTM D 1557.
  3. Independent testing laboratory shall inform ENGINEER's Resident Project Representative and CONTRACTOR's on-site supervisor immediately of all on-site test results.
  4. Place no additional fill in areas where compaction results do not meet Specification requirements.
- D. Concrete testing:
  1. Point of sampling and the method of securing the Samples:
    - a. Determined by the independent testing laboratory.
    - b. In accordance with ASTM C 172.
  2. Slump tests:
    - a. Perform slump tests in accordance with ASTM C 143.
    - b. Perform one slump test on the job for each 10 cubic yards of concrete.
    - c. At ENGINEER's request, also perform slump tests at batch plant.
    - d. Perform more slump tests if deemed necessary by ENGINEER.
  3. Perform 1 air-entraining test in accordance with ASTM C 231 or C 173 for each truckload or every 10 yards of concrete placed, whichever is more frequent.
  4. Test the concrete unit weight in accordance with ASTM C 138.
  5. Test the air content of each set of concrete cylinders.
  6. Concrete cylinder testing:
    - a. In accordance with ASTM C 31 and C 39.
    - b. Take concrete cylinder Samples as follows:
      - i. Once each day a given class of concrete is placed, nor less than
      - ii. Once for each 150 cubic yards (or fraction thereof) of each class of concrete placed on each day, nor less than
      - iii. Once for each 5000 square feet of slab or wall surface area placed each day.
    - c. Concrete cylinder Sample shall consist of 4 standard 6-inch cylinders.
    - d. Handle cylinders carefully.
    - e. On-site storage:

- i. 12 hours, minimum, 48 hours maximum.
    - ii. At a temperature range of 60 to 80 degrees F and in a moist environment.
    - iii. Shielded from direct sunlight and radiant heat.
    - iv. CONTRACTOR shall construct heated enclosure if conditions require.
  - f. Laboratory curing: For duration of curing after on-site storage.
  - g. Test 1 of the cylinders at 7 days and 2 cylinders at 28 days. Save 1 cylinder as a spare.
  - h. Acceptance and evaluation of the concrete shall be based on ACI 301.
- E. Miscellaneous tests:
- 1. OWNER or ENGINEER may elect to order testing of other materials by Independent Testing Laboratory.

END OF SECTION

## SECTION 01700

### CONTRACT CLOSEOUT

#### PART 1 - GENERAL

##### 1.01 SUMMARY:

- A. Section includes:
  - 1. This Section includes, but is not necessarily limited to, the instructions for and the responsibilities of each party in contract closeout as indicated on the Drawings, as specified herein, and as necessary for the proper and complete performance of the Work.
- B. Related Sections:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to:
    - a. General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

##### 1.02 SUBSTANTIAL COMPLETION:

- A. When CONTRACTOR considers that Work or any portion of the Work is ready for its intended use, CONTRACTOR shall submit:
  - 1. Written certification to ENGINEER and OWNER that the Work, or designated portion of the Work, is substantially complete.
  - 2. A list of major items to be completed or corrected.
  - 3. Request that ENGINEER issue a certificate of Substantial Completion.
- B. ENGINEER's inspection:
  - 1. ENGINEER will make an inspection:
    - a. Within 10 days after receipt of certification.
    - b. Together with OWNER and CONTRACTOR.
- C. ENGINEER's determination of Substantial Completion in response to CONTRACTOR's request:
  - 1. Should ENGINEER consider the Work or designated portion of the Work substantially complete, the following steps shall be taken:
    - a. CONTRACTOR shall prepare and submit to ENGINEER, a list of items to be completed or corrected as determined by the inspection.
    - b. ENGINEER will prepare and deliver to OWNER:
      - i. A tentative certificate of Substantial Completion.
      - ii. A tentative list of items to be completed or corrected before final payment.
    - c. OWNER shall have 7 days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list.
    - d. ENGINEER will, within 14 days after delivery of tentative certificate to OWNER, decide:
      - i. Not substantially complete: ENGINEER will issue written notice to CONTRACTOR stating reasons.
      - ii. Substantially complete: ENGINEER will issue definitive certificate of Substantial Completion and a final list of items to be corrected or completed.
  - 2. Should ENGINEER consider that the Work or designated portion of the Work is not substantially complete, the following steps shall be taken:
    - a. ENGINEER shall notify CONTRACTOR in writing stating ENGINEER's reasons.
    - b. CONTRACTOR shall complete the work and send a second written notice to ENGINEER certifying that the Project, or designated portion of the Project, is substantially complete.
    - c. ENGINEER and OWNER will reinspect the work.
- D. Division of responsibilities:
  - 1. ENGINEER:
    - a. At the time of delivery of tentative certificate of Substantial Completion.



- b. Deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment with respect to:
    - i. Security.
    - ii. Operation.
    - iii. Safety.
    - iv. Maintenance.
    - v. Heat.
    - vi. Utilities.
    - vii. Insurance.
    - viii. Warranties.
- 2. ENGINEER's written recommendation on division of responsibilities shall be binding on OWNER and CONTRACTOR until final payment unless OWNER and CONTRACTOR agree otherwise in writing and so notify ENGINEER prior to ENGINEER's issuance of a definitive certificate of Substantial Completion.

1.03 FINAL INSPECTION:

- A. CONTRACTOR certification:
  - 1. Prior to final inspection, CONTRACTOR shall submit written certification that:
    - a. The Contract Documents have been reviewed.
    - b. The Project has been inspected in compliance with the Contract Documents.
    - c. Work has been completed in accordance with the Contract Documents.
    - d. Equipment and systems have been tested in the presence of the OWNER's representative and are optional.
    - e. The Project is complete and ready for final inspection.
- B. ENGINEER's inspection:
  - 1. The ENGINEER will make final inspection:
    - a. Within 10 days after receipt of certification.
    - b. Together with OWNER and CONTRACTOR.
- C. ENGINEER's determination of final completion:
  - 1. Should ENGINEER consider the Work finally complete in accordance with the requirements of the contract documents, ENGINEER shall request CONTRACTOR to make Project closeout submittals.
  - 2. Should ENGINEER consider the Work not finally complete:
    - a. ENGINEER shall notify CONTRACTOR in writing stating the reasons.
    - b. CONTRACTOR:
      - i. Take immediate steps to remedy the stated deficiencies.
      - ii. Send a second written notice to ENGINEER certifying that the Work is complete.
    - c. ENGINEER and OWNER will reinspect the Work.

1.04 REINSPECTION COSTS:

- A. Should ENGINEER be required to perform second inspections because of failure of the Work to comply with the original certifications of CONTRACTOR, OWNER will compensate ENGINEER for additional services and deduct the amount paid from payment or payments to CONTRACTOR.

1.05 ADDITIONAL INSPECTION COSTS:

- A. Substantial Completion:
  - 1. OWNER will compensate ENGINEER for inspection services rendered between the scheduled date of Substantial Completion and the actual date of Substantial Completion and deduct the amounts paid from payment or payments to CONTRACTOR.
- B. Final Completion:
  - 1. OWNER will compensate ENGINEER for inspection services rendered between the scheduled date of final completion and the actual date of final completion and deduct the amounts paid from payment or payments to CONTRACTOR.

1.06 CLOSEOUT SUBMITTALS:

A. CONTRACTOR:

1. Provide closeout submittals as required in the Contract Documents.
2. These submittals shall include, but not necessarily be limited to:
  - a. Project record documents.
  - b. Operation and maintenance manuals.
  - c. Guarantees.
  - d. Spare parts and maintenance materials.
  - e. Instruction in operation of all systems.

1.07 EVIDENCE OF PAYMENTS AND RELEASE OF LIENS:

A. Affidavits:

1. Submit with final Application for Payment an affidavit of payment of debts and release of claims.
2. Affidavit shall include:
  - a. CONTRACTOR's release or waiver of lien.
  - b. Consent of surety of final payment.
  - c. Separate releases or waivers of liens for Subcontractors, Suppliers and others with lien rights against property of OWNER together with a list of those parties.

B. Execution:

1. All submittals shall be duly executed before delivery to ENGINEER.

1.08 FINAL ADJUSTMENT OF ACCOUNTS:

A. Final statement:

1. Submit a final statement of accounting, which reflects all adjustment, to ENGINEER. This statement shall contain the following:
  - a. Original Contract Price.
  - b. Additions and deductions.
  - c. Total Contract Price as adjusted.
  - d. Previous payments.
  - e. Sum remaining due.

B. Final Change Order:

1. ENGINEER will prepare a final Change Order reflecting approved adjustments to the Contract Price not previously made by Change Orders and based on final field measurements of quantities installed.

1.09 FINAL APPLICATION FOR PAYMENT:

A. CONTRACTOR shall submit a final Application for Payment in accordance with the requirements of the Contract Documents.

B. Disposition of final Application for Payment:

1. ENGINEER will, within 10 days after receipt of the Application for Payment:
  - a. Submit to OWNER a written recommendation for payment.
  - b. Submit to OWNER and CONTRACTOR a written notice that the Work is acceptable subject to the provisions of GC 14.07 of Section 00700: General Conditions.
2. OWNER will, within 30 days after receipt of the Application for Payment and ENGINEER's recommendations in accordance with the Contract Documents, pay to CONTRACTOR the amount recommended.

C. If the Application for Payment, the Work or both are unacceptable:

1. ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment.
2. CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

D. OWNER shall make payment of the balance due for that portion of the Work fully completed and accepted:

1. If ENGINEER confirms that final completion of the Work is significantly delayed through no fault of CONTRACTOR.

2. Payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

- E. If CONTRACTOR submits written consent of surety for reduction of retainage to less than the amount stipulated in the Agreement.

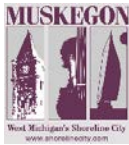
PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION



GENERAL SPECIFICATIONS  
3.0 FOR PROJECT PERFORMANCE

3.0.1 ASSIGNMENT OR NOVATION

- a. The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities or responsibilities under this Contract without the written consent of the City of Muskegon; provided, however, that assignments to banks, trust companies or other financial institutions may be made without said consent.
- b. No assignment or novation of this Contract shall be valid unless it expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools and equipment supplied for the performance of the work under this Contract in favor of all persons, firms or corporations rendering such labor or services, or supplying such materials, tools or equipment.

3.0.2 CONFLICT OF INTEREST

- a. No official of the City of Muskegon who is authorized in such capacity and on behalf of the City to negotiate, make, accept or approve, or to take part in negotiating, making, accepting or approving, any engineering, inspection, construction or material supply contract, or any subcontract, in connection with the construction of this Project shall become directly or indirectly interested personally in this Contract or in any part hereof.
- b. No officer, employee, architect, attorney, engineer or inspector of or for the City who is authorized in such capacity, and on behalf of the City, to exercise any legislative, executive, supervisory or other similar function in connection with the construction of this Project, shall become directly or indirectly interested personally in this Contract or in any part hereof, any material supply contract, any subcontract, any insurance contract, or any other contract pertaining to this Project.

3.0.3 CITY'S AUTHORITY

- a. The City of Muskegon shall designate and identify its Authorized Representative(s) and Inspectors.
- b. The Authorized Representative will be responsible for the execution of the work under this Contract. The Authorized Representative will determine the amount, quality, acceptability of materials, and fitness of the work to be paid for under this Contract. That Representative will decide all questions which may arise in relation to said work and the construction thereof. The City's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided.
- c. Inspectors will work under the direct supervision of the Authorized Representative. Inspectors will not be authorized to revoke, alter, enlarge or relax any of these specifications nor to change the plans in any particular. The Inspector on the work will inform the Authorized Representative as to the progress of the work, the manner in which it is being done, and the quality of the materials being used. He/She will also call to the attention of the Contractor any failure to follow the plans and specifications that may be observed. He/She shall have the authority to prevent any material from being used, and to stop any work from being done, which he/she believes does not conform to the plans and specifications, until the Authorized Representative has an opportunity to inspect the material or work. In no instance shall any action or omission on the part of the Inspector relieve the Contractor of the responsibility of completing the work in accordance with the plans and specifications.



- d. In case any question shall arise between the parties hereto relative to said Contract, the determination or decision of the City shall be a condition precedent to the right of the Contractor to receive any money or payment for work under this Contract affected in any manner, or to any extent, by such question.
- e. The City shall decide the meaning and intent of any portion of this Contract or any specifications therein where the same may be found obscure or in dispute. Any differences or conflicts in regard to the work which may arise between the Contractor under this Contract and other contractors performing work for the City shall be adjusted and determined by the City.

**3.0.4 OTHER CONTRACTS** - The City may award, or may have awarded, other contracts for additional work in the vicinity of this Project; and the Contractor shall cooperate fully with such other contractors by scheduling his/her own work with that to be performed under other contracts as may be directed by the City. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor as scheduled.

**3.0.5 TERMINATION OF CONTRACT**

- a. If the Contractor refuses or fails to prosecute the work with such diligence as will ensure its completion within the time specified, or as amended, in these Contract Documents, the City may, by written notice, terminate the Contractor's right to proceed with the work.
- b. Upon such termination, the City of Muskegon may take over the work and prosecute same to completion, by contract or otherwise, and may take possession of, and utilize in completing the work, such materials, tools, equipment and plant as may be on the site of the work and necessary to the completion thereof.
- c. The Contractor and the sureties to the Contract shall be liable to the City for any additional cost incurred by the City in its completion of the work, and shall further be liable for the liquidated damages for any delay in completion of work as provided by this Contract.

**3.0.6 REVIEW BY AUTHORIZED REPRESENTATIVES** - The City of Muskegon, its authorized representative(s) and/or agents shall at all times have access to, and be permitted to observe and review, all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, however, that all instructions and approval with respect to the work will be given to the Contractor by the City of Muskegon through its Authorized Representative.

**3.0.7 GENERAL GUARANTY**

- a. Final acceptance of the work will be acknowledged in writing to the Contractor by the City of Muskegon. Neither the final certificate of payment, any provision in the Contract, nor partial or entire use of the improvements embraced in this Contract by the City or the public shall constitute an acceptance of work not done in accordance with the Contract; nor shall such certificate, provision or use relieve the Contractor of liability in respect to any express warranties or responsibilities for faulty materials or workmanship.
- b. The period of guarantee shall not begin until the date of final written acceptance by the City of all work required. The Contractor shall promptly remedy any defects in the work and pay for the damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work.



### 3.0.8 WARRANTY OF TITLE

- a. No material, supplies or equipment for the work shall be purchased subject to any chattel mortgage or under conditional sale or other agreement by which an interest therein, or in any part thereof, is retained by the seller or supplier.
- b. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and, upon completion of all work, shall deliver the same, together with all improvements and appurtenances constructed or placed thereon by him/her, to the City of Muskegon free from any claims, liens or charges.
- c. Neither the Contractor nor any person, firm or corporation furnishing any material and/or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon.
- d. Nothing contained in this paragraph, however, shall impair:
  - i. The right of persons furnishing materials or labor to recover funds owed them under any bond given by the Contractor for their protection;
  - ii. Any rights under any law permitting such persons to look to funds due the Contractor yet in the hands of the City.
- e. The provisions of this Subsection 5 shall be inserted in all Subcontracts and material contracts; and notice of its provisions shall be given to all persons furnishing materials for the Project when no formal contract is entered into for such materials.

3.0.9 PATENTS - The Contractor shall hold and save the City of Muskegon, its officers and employees, harmless from liability of any nature or kind, including costs and expenses, for or on account of any patented or unpatented invention, process article, or appliance manufactured or used in the performance of the Contract, including its use by the City of Muskegon.

### 3.0.10 PAYROLLS AND BASIC RECORDS

- a. The Contractor will submit weekly a copy of all payrolls, basic records relating thereto, and completed forms as requested, to the City's Affirmative Action Department accompanied by a "Weekly Statement of Compliance". The prime Contractor shall be responsible for the submission of copies of payrolls of all Subcontractors. \*
- b. The Contractor shall submit to the City such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the City may request from time to time concerning the work performed under this Contract.
- c. The Contractor shall withhold Muskegon City Income Taxes from each and every employee who is subject to same, and shall pay Contractor's Income Tax due, if any. Contractor shall further require the same of each Subcontractor, consultant or other pay with whom the contractor works or from whom contractor obtains goods or services for the project. Payroll submissions required by this agreement shall include full information showing said withholding. The City may withhold payments otherwise due to the contractor to assure compliance with this agreement or cure noncompliance.

### 3.0.11 SIGNS AS REQUIRED

- a. The signs that may be required for this project by the Department of HUD, the National Historic Preservation organizations, or other pertinent funding agencies which may require significant posting on the job site, will be provided and erected by the Contractor as incidental to the Contract.
- b. The Contractor shall maintain these signs in good condition throughout the life of this contract.

3.0.12 NATIONAL HISTORIC PRESERVATION ACT OF 1966 - The Contractor agrees to contribute to the preservation and enhancement of structures and objects of historical, architectural or archaeological



significance when such items are found and/or unearthed during the course of the project, and to consult with the State Historic Preservation Officer for recovery of the items: [Reference: National Historic Preservation Act of 1966 (80 Stat 915, 16 USC 470) and Executive Order No. 11593 of May 31, 1971] AND to assure Subcontractor's compliance as well.

3.0.13 CLEAN AIR ACT - The Contractor shall comply and shall require each of its Subcontractors employed in the completion of this project to comply with all applicable provisions of the Clean Air Act as amended by Public Law 91-604.\*

3.0.14 SOIL EROSION AND SEDIMENT CONTROL ACTS

- a. Public Acts 346 and 347 as amended shall be observed and enforced while working under these documents. Necessary permits for both Acts shall be obtained by the City of Muskegon. Enforcement for Act 346 shall be by the Michigan Department of Natural Resources, and the enforcing agent for Act 347 shall be the City of Muskegon.
- b. The Contractor shall conduct his/her work in such a manner that soil, fuels, oil, bituminous materials, chemicals, sanitary sewage and other harmful materials resulting from the execution of this project are confined within project limits and prevented from entering watercourses, rivers, lakes or reservoirs. All applicable regulations of fish and wildlife agencies and statutes relating to the prevention and abatement of pollution shall be complied with during the performance of this contract. Operations shall be conducted in such a manner as to reduce erosion to the practicable minimum to prevent damaging sedimentation of watercourses, streams or lakes.\*
- c. The Contractor shall be responsible for utilizing various measures of control in his/her own work and that of Subcontractors to prevent erosion and sediment damage. When applicable, these measures and requirements will be identified and provided on the plans or in the Special Specifications. They are, however, not to be considered all-inclusive, as additional protective measures may be required as the work progresses. No payment will be allowed for this work.

3.0.15 SOIL REMOVAL AND DUMPING ORDINANCE - Under City ordinance, a permit must be obtained from, and a \$150 fee paid to, the City of Muskegon Building Inspection Department IF excavated or excess soil materials become the property of the Contractor AND those materials are to be deposited as fill within the corporate limits of the City of Muskegon; OTHERWISE, no permit will be required of the Contractor while working on the Project covered by this Contract.

3.0.16 PERMITS AND CODES

- a. The Contractor shall give all notices required by and comply with all applicable laws, ordinances and codes of the local government. All construction work and/or utility installations shall comply with all applicable ordinances and codes including all written waivers. Before installing any work, the Contractor shall examine the drawings and the Specifications for compliance with applicable ordinances and codes, and shall immediately report any discrepancy to the City.
- b. Where the requirements of the drawings and Specifications fail to comply with such applicable ordinances and codes, the City will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated Unit Prices.
- c. Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with drawings, Technical or Special Specifications), the Contractor shall





remove such work without cost to the City, but a Change Order may be issued to cover only the excess cost the Contractor would have been entitled to receive if the change had been made before he/she commenced work on the items involved.

- d. The Contractor shall at his/her own expense secure and pay for all necessary permits to execute the work from each involved governmental unit, whether it be the City of Muskegon, townships, County or State of Michigan. In some cases, certain permits will be obtained by the owner and will be so identified within the Special Specifications. All other permits are the responsibility of the Contractor.
- e. The Contractor shall comply with applicable local and state laws and ordinances governing the disposal of surplus excavation materials, debris and rubbish on or off the Project Site and commit to trespass on any public or private property in any operation due to or connected with the improvements embraced in this Contract.

**3.0.17 TRAFFIC CONTROL** - The Contractor shall at all time so conduct his/her work as to ensure the least possible obstruction to traffic. The safety and convenience of the general public and the residents in or adjacent to the Project Site and the protection of persons and property shall be provided for by the Contractor. The Contractor shall provide and maintain adequate barricades, signs, lights and flags to warn and guide the public, and shall provide flagmen and watchmen when needed or when so ordered by the City in full accordance with the MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, published and revised from time to time by the Michigan Department of Transportation. The Contractor shall be responsible for compliance with this Item by all Subcontractors as well.\*

**3.0.18 REQUIRED PROVISIONS DEEMED INSERTED** - Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein; and, if through error or otherwise, any such provision is not inserted, or is incorrectly inserted, then upon the application of either party to this Contract, the Contract shall forthwith be physically amended to make such insertion or correction. This clause shall be included in all Subcontracts.\*

**3.0.19 COMMUNICATIONS**

- a. All notices, demands, requests, instructions, approvals, proposals and claims must be in writing.
- b. Any notice to or demand upon the Contractor from the City relative to any part of this Contract shall be sufficiently considered given, and the service thereof completed, when said notice is posted, by certified or registered mail, to the Contractor at his/her last given address; or when said notice is delivered in person to the Contractor or authorized representative on the Project Site, at the office of the Contractor, or to any telegraph company for transmission with charges prepaid, in each case addressed to such office.
- c. All papers required to be delivered to the City of Muskegon shall be delivered to the Muskegon City Hall, to the attention of the Authorized Representative on this Project, and any notice to or demand upon the City shall be sufficiently given if so delivered, or if posted, by certified or registered mail, to 933 Terrace Street, Muskegon, Michigan 49443, or to any telegraph company for transmission with charges prepaid, in each case to the same address. Any such notice shall be deemed to have been given as of the time of the actual delivery or at the time of actual receipt, as the case may be.

**3.0.20 REQUEST FOR SUPPLEMENTARY INFORMATION** - It shall be the responsibility of the Contractor to make timely requests of the City for any additional information not already in his/her possession which should be furnished by the City under the terms of this Contract, and which he/she will require in the planning and execution of the work. Such requests may be submitted from time to time as the need arises, but each shall be filed in ample time to permit appropriate action to be taken by all parties





involved so as to avoid delay. Each request shall be in writing, listing the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two (2) weeks after the Contract award, and shall be as complete as possible at that time. The Contractor shall, upon request, furnish promptly any assistance and information the City may require in responding to these requests. The Contractor shall be fully responsible for any delay in his/her work or to others arising from his/her failure to comply fully with the provision of this Article.

### 3.0.21 PROGRESS SCHEDULE AND NOTIFICATION REQUIREMENTS

- a. Immediately after execution of the Agreement, the Contractor shall submit for approval a carefully prepared Progress Schedule showing the proposed dates of starting and completing each of the various sections of work. The work which the Contractor is required to perform under this Contract shall commence at the time stipulated by the City in its Notice to Proceed and shall be fully completed by the dates indicated in the Contract Agreement.
- b. The Contractor shall notify the City's Authorized Representative as to the exact time at which he/she proposes to begin any part of the work at least 48 hours in advance of any such start so that line and grade can be established and inspections provided.
- c. When work is to be done by City forces, in coordination with City forces, or if City of Muskegon utilities need to be located and/or marked, the Contractor shall provide at least 48 hours' advance notice to the City Department from which the work is requested.
- d. The Contractor shall notify "Miss Dig" 48 hours in advance of any work start to allow sufficient time for utility identification and location. The City of Muskegon is NOT a part of the "Miss Dig" program.
- e. Before permission can be granted by the Authorized Representative for street closures, it shall be the Contractor's responsibility to notify the police and fire departments and the Department of Public Works and Utilities.

### 3.0.22 PAYMENTS BY THE CONTRACTOR

- a. The Contractor shall provide and pay for all materials, labor, tools, equipment, water, lights, heat, power, transportation, superintendence, temporary construction of every nature, charges, levies, fees or other expenses, and all other services and facilities of every nature necessary for the performance of this Contract and delivery of all improvements embraced therein within the specified time.
- b. The Contractor shall pay for all transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered.
- c. The Contractor shall pay for all materials, tools, and other expendable equipment to the extent of 90% of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools and equipment are delivered at the Project Site, and the balance of cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used.
- d. The Contractor shall pay to each of his/her Subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed him/her on account of the work performed by the Subcontractors to the extent of each Subcontractor's interest therein.

### 3.0.23 SUBCONTRACTS

- a. The Contractor shall not execute an agreement with any Subcontractor or permit any subcontractor to perform any work included in this Contract until he/she has submitted a non-collusive affidavit from the subcontractor and received written approval of such subcontractor from the City of Muskegon.



- b. The Contractor shall be as fully responsible to the City of Muskegon for the acts and omissions of his/her Subcontractors, and of persons either directly or indirectly employed by them, as he/she is for the acts and omissions of persons directly employed by the Contractor.
- c. The Contractor shall cause appropriate provisions to be inserted in all Sub-contracts relative to compliance by each Sub- contractor with the provisions of this Contract.
- d. No proposed Subcontractor shall be disapproved by the City of Muskegon except for cause. Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the City of Muskegon.

#### 3.0.24 INSURANCE AND INDEMNITY

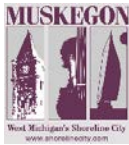
- a. Hold Harmless Agreements. To the fullest extent permitted by law, Contractor and Subcontractors agree to defend, pay in behalf of, indemnify, and hold harmless the CITY OF MUSKEGON, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof working on behalf of the CITY OF MUSKEGON against any and all claims, demands, suits, or loss, including all costs connected therewith, and for any damages which may be asserted, claimed or recovered against or from the CITY OF MUSKEGON and their elected and appointed officials, employees, volunteers, or others working on behalf of the CITY OF MUSKEGON by reason of personal injury, including bodily injury and death, property damage, including loss of use thereof, and/or the effects of or release of toxic and/or hazardous material which arises out of or is any way connected or associated with this contract. The obligation to defend and hold harmless extends to Contractor's employees, agents, subcontractors, assigns and successors.
- b. The contractor, or any of their subcontractors, shall not commence work under this contract until they have obtained the insurance required under this paragraph, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan and acceptable to the CITY OF MUSKEGON. The requirements below should not be interpreted to limit the liability of the Contractor. All deductibles and SIR's are the responsibility of the Contractor.
- c. **The Contractor shall procure and maintain the following insurance coverage:**
  - i. Workers' Compensation Insurance- The Contractor and Subcontractor shall procure and maintain during the life of this contract, Workers' Compensation Insurance, including Employers Liability Coverage in accordance with all applicable Statutes of the State of Michigan.
  - ii. Commercial General Liability Insurance - 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 \$1,000,000.00 per occurrence and aggregate combined. 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. Personal Injury, Bodily Injury and Property Damage coverage's shall be included (E) Deletion of all explosion, collapse and underground (SCU) exclusions, if applicable. The said insurance shall cover liability caused by the activities of any subcontractor.
  - iii. Automotive Liability - The Contractor shall procure and maintain during the life of this contract Automotive Liability Insurance, including Michigan No-Fault Coverage's, with limits of liability for third party claims of not less than \$1,000,000.00 per occurrence or combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned



- vehicles and all hired vehicles. The said insurance shall cover liability caused by the activities of any subcontractor.
- iv. Additional Insured- Commercial General Liability and Automotive Liability Insurance, as described above, shall include an endorsement stating the following shall be "Additional Insureds" using the following language: "The CITY OF MUSKEGON and all elected and appointed officials, all employees and volunteers, all boards, commissions and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed by naming The CITY OF MUSKEGON as additional insured, coverage afforded is considered to be primary and any other insurance The City of Muskegon may have in effect shall be considered secondary and/or excess.
  - v. Cancellation Notice- All policies as described above, shall include an endorsement stating that it is understood and agreed 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: CITY OF MUSKEGON ENGINEERING DEPARTMENT", PO Box 0536, Muskegon, MI 49443-0536
- d. Owner's and Contractor's Protective Liability- The Contractor shall procure and maintain during the life of this contract Owner's and Contractor's Protective Liability with limits of liability not less than \$1,000,000.00 per occurrence and/or aggregate, combined single limit. Personal injury, Bodily injury and Property Damage coverage's shall be included. The CITY OF MUSKEGON shall be "Named Insured" on this coverage. Thirty (30) day notice of cancellation to the CITY OF MUSKEGON shall be required. Said insurance shall cover liability caused by the activities of any subcontractor(s) either by means of a rider attached to the Prime Contractor's Certificate of Insurance indicating this coverage for subcontractors; or the subcontractor(s) shall submit their own Certificate of Insurance.
- e. Proof of Insurance Coverage - The Contractor and Subcontractors shall provide the CITY OF MUSKEGON at the time the contracts are returned by him/her for execution, a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, if applicable, a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. Copies or certified copies of all policies mentioned above shall be furnished. Certificates and policies endorsing the City of Muskegon as additional insured as listed below:
- i. Two (2) copies of Certificate of Insurance for
  - ii. Workers' Compensation Insurance;
  - iii. Two (2) copies of Certificate of Insurance for Commercial General Liability Insurance;
  - iv. Two (2) copies of Certificate of Insurance for Automotive Liability Insurance;
  - v. Original Policy, or original Binder pending issuance of policy, for Owner's and Contractor's Protective Liability Insurance;
  - vi. If so requested, Certified Copies of all policies mentioned above will be furnished.
- f. If any of the above coverage's expires during the term of this contract, the Contractor and Subcontractors shall deliver renewal certificates and/or policies to CITY OF MUSKEGON at least ten (10) days prior to the expiration date.

### 3.0.25 MATERIALS AND WORKMANSHIP

- a. Unless otherwise specifically provided for in the Technical or Special Specifications, all workmanship, equipment, materials and articles the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or



workmanship are referred to as "equal to" any particular standard, the City of Muskegon will decide the question of equality.

- b. The City of Muskegon may require the Contractor to dismiss from this Project such employee(s) as the City of Muskegon may deem incompetent, careless, and/or insubordinate.

### 3.0.26 SUPERINTENDENCE BY CONTRACTOR

- a. Except where the Contractor is an individual and gives his/her personal superintendence to the work, the Contractor shall provide a competent superintendent, satisfactory to the City of Muskegon, on the work at all times during working hours with full authority to act for the Contractor. The Contractor shall also provide adequate staff for the proper coordination and expediting of the work.
- b. The Contractor shall lay out his/her own work, and shall be responsible for all work executed by him/her under this Contract. He/She shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his/her failure to do so.
- c.

3.0.27 FITTING AND COORDINATION OF THE WORK - The Contractor shall be responsible for the proper fitting of all work, and for the coordination of the operations of all trades, subcontractors, or materialmen engaged upon this Contract. He/She shall be prepared to guarantee to each of his/her Subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

### 3.0.28 MUTUAL RESPONSIBILITY OF CONTRACTORS

- a. If, through acts or neglect on the part of the Contractor, any other contractor or any subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other contractor or subcontractor by agreement or arbitration, if such other contractor or subcontractor will so settle.
- b. If such other contractor or subcontractor shall assert any claim against the City of Muskegon on account of any damage alleged to have been so sustained, the City will notify the Contractor, who shall defend at his/her own expense any suit based upon such claim, and, if any judgment or claim against the City is allowed, the Contractor shall pay all costs and expenses in connection therewith.

### 3.0.29 CARE OF THE WORK

- a. The Contractor shall be responsible for all damages to person or property that occur as a result of his/her fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance, whether or not the same has been covered in whole or part by payments made by the City.
- b. The Contractor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays and holidays, from the time the work commences until final completion and acceptance, as needed.
- c. In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the City, is authorized to act at his/her own discretion to prevent such threatened loss or injury, and he/she shall so act. He/She shall likewise act if instructed to do so by the City. Any compensation claimed by the Contractor on account of such emergency work will be determined by the City as provided in this Contract regarding Change Orders.
- d. The Contractor shall avoid damage as a result of his/her operation to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed),



adjoining property, etc., and he/she shall at his/her own expense completely repair any damage thereto caused by his/her operation.

- e. The Contractor shall shore up, brace, underpin, secure and protect, as may be necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of, the Site which may be in any way affected by the excavations or other operations connected with the execution of this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before commencement of any work. The Contractor shall indemnify and save harmless the City of Muskegon from the damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the City may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

### 3.0.30 SURVEY MONUMENTS

- a. Survey monuments relative to governmental surveys such as a U.S. Coast and Geodetic and the City of Muskegon datum plane reference are to be preserved and left undisturbed by the Contractor. Land survey monuments such as Section corners, 1/4 and 1/8 corners, or other alignment points of reference, including property corners of individual parcels of land, are to be respected and left undisturbed. When found in conflict with proposed work, the Contractor shall immediately notify the Authorized Representative in charge of work, whereupon instructions shall be given to the Contractor for preservation of the Survey Point. If housings or boxes for protection are required, the City shall furnish to the Contractor at no cost the necessary materials. The Contractor, in turn, will install the materials at no cost to the City.
- b. If the Contractor damages or destroys known Survey Points of reference, the Contractor shall be responsible for replacement of the monument. The work must be accomplished by a registered land surveyor in accordance with accepted procedures for such work. The Contractor shall be responsible for all incurred costs.

3.0.31 SANITARY FACILITIES - The Contractor shall furnish, install and maintain ample sanitary facilities for the workers. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes for the state and local government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single-service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in accordance with existing and governing health regulations.

3.0.32 USE OF CITY WATER - Upon request and approval, the Contractor may obtain a water supply from the City of Muskegon fire hydrants at no cost, provided that the following conditions are met and exercised:

- a. The Contractor's superintendent shall obtain from the Water Department Superintendent a proper connection, including a meter to monitor usage.
- b. The Contractor shall only use hydrant wrenches to open and close hydrants; pipe wrenches will not be allowed.
- c. The hydrant shall be fully opened when used; volume shall be controlled by an independent hand valve.
- d. The Contractor's release shall not be granted until the hydrant connection has been returned to the Water Department and such receipt acknowledged.





### 3.0.33 USE OF PREMISES

- a. The Contractor shall comply with all instructions of the City of Muskegon and the ordinances and codes of the local government regarding signs, advertising, traffic, fires, explosives, danger signals and barricades.
- b. The Contractor shall confine his/her equipment, storage of materials, and construction/demolition operations to the Contract limits as shown on the drawings and as prescribed by ordinances or permits, or as may be directed by the City, and shall not unreasonably encumber the Site or public rights-of-way with his/her materials and equipment.
- c. The Contractor and his/her Subcontractors may maintain such office and storage facilities on the Site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the Site. The City shall be consulted with regard to locations.
- d. The Contractor may furnish and maintain, during the execution of this Project, adequate facilities on the Site or adjacent thereto for the use of the City's representatives.
- e. Upon completion of the Project, or as directed by the City, the Contractor shall remove all such temporary structures and facilities as have been placed on the Site, these to become his/her property, and leave the Project Site in the condition required by the Contract.

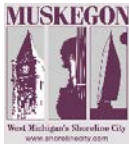
3.0.34 PARTIAL USE OF SITE IMPROVEMENTS BY THE CITY - The City of Muskegon, at its election, may give notice to the Contractor and place in use those sections of improvements which have been completed, inspected and can be accepted as complying with the Contract, if each such section is reasonably safe, fit and convenient, in the City's opinion, for the use and accommodation for which it was intended, PROVIDED THAT:

- a. The use of such sections in no way shall impede the completion of the remainder of the work by the Contractor;
- b. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections;
- c. The use of such sections shall in no way relieve the Contractor of his/her liability due to having used defective materials or due to poor workmanship.

3.0.35 REMOVAL OF DEBRIS, CLEANING, ETC. - The Contractor shall periodically, or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Site and public rights of way reasonably clear. Upon completion of the work, he/she shall remove all temporary construction facilities, debris and unused materials provided for the work, and put the whole Site of the work and public rights of way in a neat and clean condition. Trash burning on the Site will be subject to prior approval of the City of Muskegon and existing state and local regulations.

### 3.0.36 ACCIDENT PREVENTION

- a. The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the Site, which occur as a result of his/her prosecution of the work. The safety provisions of applicable laws and building, construction or demolition codes shall be observed, and the Contractor shall take, or cause to be taken, such additional safety and health measures as the City may determine to be reasonably necessary.
- b. Machinery, equipment and all hazards shall be guarded in accordance with the safety provisions of the "Manual of Accident Prevention of Construction", published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.



- c. The Contractor shall maintain an accurate record of all cases of death, occupational disease and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under this Contract. The Contractor shall promptly furnish the City with reports concerning these matters.
- d. The Contractor shall indemnify and save harmless the City of Muskegon from any claims for damages resulting from personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this Contract.

### 3.0.37 SPECIFICATIONS AND DRAWINGS

- a. The City of Muskegon will furnish the Contractor without charge one (1) copy of the Contract Documents, including General, Technical and Special Specifications complete with plans, drawings, maps, etc. Additional copies requested by the Contractor will be furnished at cost.
- b. In case of discrepancy, figured dimensions shall govern over scaled dimensions; Bid Proposal over plans; plans over Special Specifications; and Special Specifications over General and Technical Specifications.
- c. When discrepancies are found in drawings or Specifications, the matter shall be immediately submitted to the City, without whose decision said discrepancy shall not be adjusted by the Contractor except at his/her own risk and expense.

### 3.0.38 SHOP DRAWINGS FROM THE CONTRACTOR

- a. All required shop drawings, machinery details, layout drawings, etc., shall be submitted to the City in three (3) copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking, if necessary.
- b. The Contractor may proceed, only at his/her own risk, with manufacture or installation of any equipment or work covered by said Shop Drawings, etc., until they are approved. No claim by the Contractor for extension of the Contract Time will be granted by reason of the Contractor's failure in this respect.
- c. Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him/her for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his/her letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of Contract Price and/or Time; otherwise, the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.
- d. If a shop drawing is in accord with the Contract or indicates only a minor adjustment, in the interest of the City, without involving a change in Contract Price and/or Time, the City may approve the drawing. Such approval shall be general, shall not relieve the Contractor from his/her responsibility for adherence to the Contract or for any error in the drawing, and shall contain substantially the following language:
- e. "The modification shown on the attached drawing is approved in the interest of the City of Muskegon to effect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract Price or Time; that it is subject generally to all Contract stipulations and covenants; and that it is without prejudice to any and all rights of the City of Muskegon under the Contract and surety bond or bonds."



### 3.0.39 SAMPLES, CERTIFICATES AND TESTS

- a. The Contractor shall submit all equipment samples, certificates, affidavits, etc., as called for, or as required by the City, promptly after award of the Contract and acceptance of the Contractor's bond.
- b. The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required.
- c. No such material or equipment shall be manufactured or delivered to the Site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the City.
- d. Machinery, mechanical or other equipment, materials or articles installed or used without such prior City approval shall be at the risk of subsequent rejection.
- e. Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the Project for which it is intended, and the name of the producer. Each shall be accompanied by a certificate or letter from the Contractor which shall"
  - i. State that the sample complies with the Contract requirements;
  - ii. Give the name and brand of the product and its place of origin;
  - iii. Give the name and address of the producer;
  - iv. Include or be accompanied by all specifications or other detailed information which will assist the City in determining the acceptability of the sample promptly;
  - v. Include the statement that all materials or equipment furnished for use in the Project will comply with the samples and/or certified statements.
- f. Where machinery, mechanical or other special equipment is to be installed under this Contract, the Contractor shall furnish each manufacturer's detailed specifications to the City for approval together with full information in regard to proposed installations.
- g. Materials specified by reference to the number or symbol of a specific standard, such as an A.S.T.M. Standard, a Federal specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The Standards referred to shall have full force and effect as though printed herein.
- h. Approval of any materials shall be general only, and shall not constitute a waiver of the City's right to demand full compliance with Contract requirements. With regard to a general approval, the City may reject materials, equipment and accessories for cause after actual delivery to the City and such check tests have been made as deemed necessary in each instance, even though such materials and articles have been given general approval.
- i. The City's Authorized Representative may test such materials as deemed advisable on the Project Site.
- j. All tests by the City will be performed in such manner as not to delay the work unnecessarily, and shall be made in accordance with the provisions of the Specifications.
- k. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the Contract Time.
- l. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the City will have the right to cause their removal and replacement by proper materials, or to demand and secure such reparation by the Contractor as is equitable.
- m. Except as otherwise specifically stated in this Contract, the costs of sampling and testing will be divided as follows:
  - i. The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes;

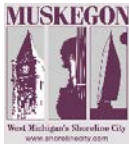




- ii. The Contractor shall assume all costs of re-testing materials which fail to meet Contract requirements;
- iii. The Contractor shall assume all costs of testing materials offered in substitution for those found deficient; and
- iv. The City of Muskegon will pay all other expenses for testing.
- n. Certificates of Compliance: In lieu of test samples and upon request of the City, the Contractor shall provide, upon delivery and through his/her supplier, a witnessed, notarized and signed certification complete with documented test results that the material meets or exceeds the desired specifications. The signer of the certification must be titled officer of the material company, and the documented test results must be obtained through an independent testing laboratory. Costs for such documentation shall be borne by the Contractor.

### 3.0.40 INSPECTION BY THE CITY

- a. All materials and workmanship shall be subject to inspection, examination, and/or test by the City of Muskegon at any and all time during manufacture or construction and at any and all places where such manufacture or construction is carried on. The inspection of materials as a whole, or in part, will generally be made at the Project Site, subject to the provisions of paragraph b following.
- b. Inspection of materials and appurtenances to be incorporated in the improvements embraced in this Contract may be made at the place of production, manufacture or shipment whenever the quantity justifies it. Such inspection and acceptance, unless otherwise stated, shall be final, except in regard to (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud.
- c. The City shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Site and replaced with material of specified quality without charge therefor.
- d. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the City may, by contract or otherwise, have the defects remedied, or rejected materials removed from the project area, and charge the cost of the same against the monies which may be due the Contractor without prejudice to any other rights or remedies of the City.
- e. The Contractor shall notify the City sufficiently in advance of back-filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the City, the Contractor shall uncover for inspection, and recover, such facilities all at his/her own expense, when so requested by the City of Muskegon.
- f. Should it be considered necessary or deemed advisable by the City at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall, on request, promptly furnish all necessary facilities, labor and/or material.
- g. If such work is found to be defective in any important or essential respect due to the fault of the Contractor or the fault of his/her Subcontractors, the Contractor shall defray all the expenses of such examination and or satisfactory reconstruction.
  - i. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15% of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor; and he/she shall be granted in addition a suitable extension of time if completion of the work under the entire



Contract has been delayed on account of the additional work involved by such request.

- ii. A semi-final inspection will be scheduled by the City when all construction has been completed.
- iii. When the City has accomplished its semi-final inspection, determined all deficiencies (if any) have been corrected, and the project is completed and functional, a final inspection will be scheduled.
- h. Neither inspection, testing, approval nor acceptance of the work in whole or in part by the City or its agents shall relieve the Contractor or his/her sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

#### 3.0.41 CHANGES IN THE WORK

- a. Except for the purpose of affording protection against any emergency endangering life or property, the Contractor shall make no change in the materials used; in the specified manner of constructing and/or installing the Improvements; nor supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless pursuant to a written order from the City authorizing the Contractor to proceed with the change. No claim for an adjustment of the contract price will be valid unless so ordered.
- b. The City may make changes in the scope of the work required to be performed by the Contractor under the Contract; make additions thereto; or omit work therefrom without invalidating the Contract; without relieving or releasing the Contractor from any of his/her obligations under the Contract or any guarantee given by him/her pursuant to the Contract; without affecting the validity of the guaranty bonds; and without relieving or releasing the surety or sureties of said bonds.
- c. All such changes in work shall be executed under the terms of the original Contract as expressly provided for.
- d. In the case where unit prices ARE contained in the Agreement, the City may order the Contractor to proceed with desired changes in the work with the value of such changes being determined by the measured quantities involved and the applicable unit prices specified in the Contract, unless said changes increase or decrease the total contract price more than twenty-five percent (25%).

#### 3.0.42 CHANGE ORDERS

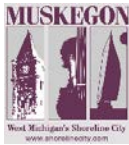
- a. Change Orders shall be executed:
  - i. If applicable unit prices ARE NOT contained in the Proposal;
  - ii. If the total net change ordered by the City increases or decreases the contract price more than twenty-five percent (25%);
  - iii. If it becomes necessary to revise the completion date due to causes which are not the fault of the Contractor;
  - iv. Upon successful completion of the Project and after final quantities are in confirmation, a Change Order Balance shall be made out by the Authorized Representative and executed by both parties. This quantity balance shall identify the total project cost and allow the Contractor to present the written Request for Final Payment.
- b. **Acceptable Methods for Cost Determination:**
  - i. Unit Price Method – The City shall request and the Contractor shall submit a written proposal describing each individual unit of work and the unit price for each item.



- ii. **Lump Sum Method** – The City shall request and the Contractor shall submit a written proposal describing the work and the lump-sum price for the described work.
- iii. **Cost-Plus, Limited Basis Method** – If other methods are not acceptable and prompt agreement between the parties cannot be reached, the City may order the Contractor to proceed with the work on a cost-plus, limited basis. A Cost-Plus, Limited Basis is defined as the net cost of the Contractor's labor, materials and equipment plus 15% of said net cost to cover overhead and profit. The total cost not to exceed an amount to be specified.
  - 1. Costs not eligible to be included in the Cost-Plus, Limited Basis are: Insurances, bonds, payroll costs for the Contractor's officers or executives, managers, engineers, lawyers or administrative personnel. These typical costs are to be considered a part of the overhead factor.
- iv. **City of Muskegon Credit Method** – If the City deems it not expedient to require the Contractor to correct work not done in accordance with the Contract, the City may issue a Credit Change Order to create an equitable deduction from the Contract Price. Said deduction will be made by agreement between the Contractor and the City of Muskegon and subject to settlement, in case of dispute, as provided in these Documents.
- c. **Change Order Procedure** – After the Contractor's proposal has been reviewed and found acceptable by both parties, the City will prepare a Change Order in accordance therewith for execution by the Contractor on the appropriate form required by the funding agency or by using the City of Muskegon change order form.
- d. **Change Order Procedure Documentation shall include:**
  - i. A detailed reason for and description of the work, its location, quantity, rate and method of payment as described above.
  - ii. A definite statement as to the resulting change in the Contract Price and/or time.
  - iii. The statement that all work involved in the change shall be performed in accordance with the Contract requirements except as modified by this Change Order.

### 3.0.43 DISPUTES AND CLAIMS

- a. All disputes arising under this Contract or its interpretation, except those disputes covered by Federal Labor Provisions, whether involving law or fact, or both, or extra work, and all claims for alleged breach of Contract shall be presented by the Contractor to the City for decision within ten (10) days of commencement of dispute.
- b. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify and prove the claim, together with its character and scope. In the meantime, the Contractor shall proceed with the work as directed.
- c. Any claim not presented within the time limit specified in Paragraph (a) above shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within then (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the City of notice thereof.
- d. After review of the claim, the City will decide upon action to be taken. Each decision by the governing body of the City of Muskegon will be in writing and will be mailed to the Contractor by registered mail, return receipt requested, directed to his/her last known address.



- e. If the Contractor does not agree with any decision of the City, he/she shall in no case allow the dispute to delay the work but shall notify the City promptly that he/she is proceeding with the work under protest, and he/she may then except the matter in question from the final release upon Request for Final Payment in substantially.

#### 3.0.44 CLAIMS FOR EXTRA COST

- a. If the Contractor claims that any instructions by drawings or otherwise involve extra cost or extension of time, he/she shall, within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his/her protest thereto in writing to the City stating clearly and in detail the basis of this objection. No such claim will be considered unless so made.
- b. Claims for additional compensation for extra work due to alleged errors in ground elevations, contour lines, or bench marks will not be recognized unless accompanied by certified survey data made prior to the time the original ground was disturbed, which clearly shows that errors exist which resulted, or would result, in handling more material or performing more work than would be reasonably estimated from the drawings and maps issued.
- c. Any discrepancies which may be discovered between actual conditions and those represented by the drawings and maps shall at once be reported to the City, and work shall not proceed except at the Contractor's risk until written instructions have been received by him/her from the City.
- d. If, on the basis of the available evidence, the City determines that an adjustment of the Contract Price and/or Contract Time is justifiable, the procedure shall be as provided in Item 39 (Part 3, Section I), Change Orders.

#### 3.0.45 DELAYS AND LIQUIDATED DAMAGES

- a. Liquidated Damages for Delays. If the work is not completed within the time stipulated in this Contract, including any extensions of time for excusable delays as provided, the Contractor and/or his sureties shall be liable for and shall pay to the City of Muskegon sum of three hundred dollars (\$300.00) for each calendar day of delay as fixed, agreed and liquidated damages (it being impossible to determine the actual damages occasioned by the delay), commencing from the time stipulated for completion until such work is satisfactorily completed and accepted.
- b. Excusable Delays. The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work DUE TO:
  - i. Any acts of government, including controls or restrictions upon or requisitioning of materials, equipment, tools or labor by reason of war, national defense or any other national emergency;
  - ii. Any acts of the City of Muskegon;
  - iii. Causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor including, but not restricted to: Acts of God or of the public enemy; acts of another contractor in the performance of some other contract with the City; fires; floods; epidemics; quarantine; restrictions; strikes; freight embargoes; and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions; and
  - iv. Any delay of any Subcontractor occasioned by any of the causes specified in subparagraphs 1, 2 and 3 above.

PROVIDED, HOWEVER, that the Contractor promptly notify the City within ten (10) days in writing of the cause of the delay.



- c. Upon receipt of such written notification, the City shall ascertain the facts and the cause and extent of the delay. If, upon the basis of the facts and in compliance with the terms of this Contract, the delay is properly excusable, the City shall extend the time for completing the work for a period of time commensurate with the period of excusable delay through the execution of a written Change Order.

#### 3.0.46 PAYMENTS TO THE CONTRACTOR

##### a. Partial Payments

- i. Partial payments will be made as specified herein for work completed and for fabricated or processed non-perishable materials delivered for the use on the project. Processing of payments will be completed as soon as practicable; however, no claim will be considered for late payment of estimates.
- ii. Partial payments will be issued on the second Friday of each month on the basis of the value of the work completed during the estimate period, less the percentage retained as specified herein, provided the written orders of the Engineer have been or are being fulfilled, provided the time for completion has not elapsed, and provided that at least one-half of the contract amount or \$1,000 has been earned during the estimate period. Said payments will be based upon estimates prepared by the Engineer of the value of the work performed, and estimates of the Engineer are subject to final balancing at the time of the final estimate. In the event that the prepared estimate is not submitted with sufficient time to process payment on the second Friday of the month, payment of the estimate will be processed for payment on the fourth Friday of the month. As a result, the Engineer's estimates may not be relied upon by a Contractor as a basis to make payment to a Subcontractor.
- iii. Before each payment by the City to the Contractor under this contract, the Contractor shall furnish the City with a certificate in duplicate, substantially to the effect that the Contractor and each Subcontractor has complied with the wage and other labor standards provisions of this contract. The Form of certificate to be used will be furnished by the City.
- iv. Before making any partial payment, the City may require the Contractor to present a verified written statement showing the amounts he/she owes for labor performed and materials furnished along with the names and addresses of the persons to whom which sums are due.
- v. In case the Contractor shall have sublet a part of the work, the statement shall also show the sum owed to the Subcontractor showing names and addresses of persons performing labor or furnishing material under that subcontract along with the respective amounts due such persons.
- vi. The City must pay the amounts due directly to the creditors of the Contractor or Subcontractor so listed, deducting the amount from that due the Contractor or Subcontractor.
- vii. Partial payments made by the City to the Contractor are monies advanced for the purpose of assisting the Contractor to expedite the work under this contract. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the City.
- viii. Any such partial payments shall not constitute a waiver of the right of the City to require the fulfillment of all terms of the contract, and the delivery of all improvements embraced therein, complete and satisfactory in all details.

##### b. Withholding Payments

- i. The City may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the City of Muskegon.





- ii. The City may also elect to withhold any amounts the Contractor owes to any subcontractor or materials dealer for work performed or materials furnished by them.
- iii. Any amount due to the City of Muskegon for liquidated damages, or other purposes as provided under the terms of this contract, shall be deducted from the final payment due the Contractor.
- iv. The foregoing provisions shall be construed solely for the benefit of
- v. the City of Muskegon and will not require the City Commission to determine or adjust any claims or disputes between the Contractor and his/her Subcontractors or materials dealers, or to withhold any monies for their protection unless the City Commission elects to do so.
- vi. The failure or refusal of the City to withhold any monies from the
- vii. Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this contract.
- viii. Right of Setoff. The City is entitled by this agreement to set off and retain from any payment to the Contractor or any Subcontractor or material supplier, all amounts which are due and owing to the City of Muskegon from said Contractor, Subcontractor, or material supplier for any reason. The said right of setoff also applies to any unpaid taxes to be collected by the City. This right of setoff shall be subject only to the right of a surety providing bonds or guarantees for the project to be due and owing to a Subcontractor or material supplier, and which are required to be paid by the surety. If no claim against any such surety has been made, then this right of setoff shall be invoked.
- ix. This right of setoff shall not apply in the case of non-management individuals employed by a Contractor or Subcontractor who have claims solely for wages earned in the performance of labor in this project. In the event there remain outstanding such claims for labor, the right of setoff shall be subordinate to such claims even though no claim against a surety has been made.
- c. Final Payment
  - i. Final payment to the Contractor shall be made subject to the furnishing of a satisfactory release of all claims against the City arising under and by virtue of this contract, other than such claims as may be specifically excepted by the Contractor from the operation of release as provided under "Disputes and Claims".
  - ii. The Contractor shall prepare his/her Requisition for Final Payment after final inspection and acceptance by the City for all work under the contract.
  - iii. The Contractor shall additionally secure the consent of his/her surety in regard to Final Payments as well as the retainage withheld by the City.
  - iv. Requisition for Final Payment can be based upon the total project dollar amount as described in the required Balancing Change Order. The total amount of the final payment will be that amount agreed upon by the parties hereto MINUS all previous payments.
  - v. Before making final payment, the City may require the Contractor to furnish releases or receipts from all Subcontractors having performed any work and from all persons having supplied materials, equipment installed on the project, and services to the Contractor.
  - vi. If the City deems it advisable to make payment in part or full to the Contractor without requiring the furnishing of such releases or receipts, any payments so made shall in no way impair the obligations of any surety or sureties furnished under this contract.



### 3.1 TIME CHANGE ORDER

**Project No.:** \_\_\_\_\_

**Contract No.:** \_\_\_\_\_

Contractor Information:

Company Name: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State Zip: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Requested Time Change Order Date: \_\_\_\_\_

**In connection with the above referenced Contract, dated: \_\_\_\_\_,**  
**for the Project entitled: \_\_\_\_\_,**

**The following change is ordered, subject to conditions hereinafter set forth:**

**The Contract Time is extended \_\_\_\_\_ calendar days from the original**

**Contract Completion Date of: \_\_\_\_\_ to: \_\_\_\_\_.**

The City of Muskegon has duly determined that:

- The delay was due to unforeseeable causes beyond your control and without your fault or negligence:
- Notice of the cause of the delay was given within the time and in the manner prescribed by the Contract.
- The causes of delay justify and require an extension of the time as herein provided as a matter of legal right without the assertion of a claim by the owner for (actual) (liquidated) damages because of the Contractor's failure to complete the work within the number of days specified by the Contract.

The aforementioned changes, and work affected thereby, are subject to all contract stipulation and covenants. The Rights of the city of Muskegon are not prejudiced. All claims against the City of Muskegon which are identical to or as a consequence of the aforementioned change are satisfied

---

**Contractor Approval**

---

**City of Muskegon Approval**

---

Authorized Representative Signature      Date

---

Authorized Representative Signature      Date

---

Printed Name                      Title

---

Printed Name                      Title

---

Prepared By


Date



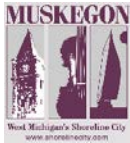
City of Muskegon  
Engineering Department

Doc: GENSPECSREV2  
March 26, 2019

3.2 CONTRACT CHANGE ORDER

CONTRACTOR		CONTRACT						DATE	11/10/2017		
								CHANGE ORDER			
								No.		1	
	ITEM OF WORK	UNIT	QUANTITY	QUANTITY	QUANTITY	QUANTITY	UNIT	AMOUNT	AMOUNT		
	DESCRIPTION, REASON, LOCATION OF CHANGE	OF MEASURE	PROPOSAL	AS BUILT	INCREASE +	DECREASE -	COST	INCREASE	DECREASE		
1								\$0.00	\$0.00		
2								\$0.00	\$0.00		
3								\$0.00	\$0.00		
 West Michigan's Shoreline City www.shorelinecity.com		CHANGE REQUEST EFFECTIVE DATE:						TOTALS	\$0.00	\$0.00	
								ORIGINAL CONTRACT PRICE:	\$0.00		
								NET +/-	\$0.00		
								REVISED CONTRACT PRICE:	\$0.00		
ENGINEERING DEPARTMENT		CONTRACTOR APPROVAL					CITY OF MUSKEGON APPROVAL				
		AUTHORIZED REPRESENTATIVE AND DATE					AUTHORIZED REPRESENTATIVE AND DATE				
PREPARED BY		DATE		PRINTED NAME AND TITLE			PRINTED NAME AND TITLE				





**3.3 CONTRACTOR'S CERTIFICATE & RELEASE REQUEST FOR FINAL PAYMENT**

FROM: (Name of Contractor)

TO: The City of Muskegon

RE: **Contract No.**

ENTERED INTO THE \_\_\_\_\_ DAY OF \_\_\_\_\_ BETWEEN THE CITY OF MUSKEGON,  
933 Terrace Street, Muskegon, Michigan 49443, AND

(Contractor)

(City)

(State)

(ZIP)

**FOR THE: RESURFACING OF MONROE AVE., FROM FOURTH ST. TO FIFTH ST.**

**(Name of Operations to be performed)**

**UNDER THE CONTRACT ENTITLED:**

**PROJECT NO.  
MICHIGAN;**

**-LOCATED IN THE CITY OF MUSKEGON,**

**KNOW ALL MEN BY THESE PRESENTS:**

1. The undersigned hereby certifies that there is due from and payable by the CITY OF MUSKEGON to the CONTRACTOR under the Contract and duly approved Change Orders and modifications THE BALANCE OF \$ \_\_\_\_\_.
2. The undersigned further certifies that in addition to the amount set forth in Paragraph 1, there are outstanding and unsettled the following items which the Contractor claims are just and due and owing by the City of Muskegon to the Contractor:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_

(Itemize claims and amounts due; if none, so state)
3. The undersigned further certifies that all work required under this Contract, including work required under Change Orders Nos. \_\_\_\_\_, has been performed in accordance with the terms thereof, and that there are no unpaid claims for materials, supplies or equipment and no claims of laborers or mechanics for unpaid wages arising out of the performance of this Contract, and that the wage rates paid by the Contractor and all Subcontractors were in conformity with the Contract provisions relating to said wage rates.
4. Except for the amounts stated under Paragraphs 1 and 2 hereof, the undersigned has received from the CITY OF MUSKEGON all sums of money payable to the undersigned under or pursuant to the above-mentioned Contract or any modification or change thereof.

\*Date contract awarded by the City commission



(CONTRACTOR'S CERTIFICATE AND RELEASE – Continued)

5. That in consideration of the payment of the amount stated in Paragraph 1 hereof, the undersigned does hereby release the CITY OF MUSKEGON from any and all claims arising under or by virtue of this Contract, except the amount listed in Paragraph 2 hereof; provided, however, that if for any reason the City of Muskegon does not pay in full the amount stated in Paragraph 1 hereof, said deduction shall not affect the validity of this release, but the amount so deducted shall be automatically included under Paragraph 2 as an amount which the Contractor has not released but will release upon payment thereof.

The Contractor further certifies that upon the payment of the amount listen in Paragraph 2 hereof, and of any amount which may be deducted from Paragraph 1 hereof, the Contractor will release the City of Muskegon from any and all claims of any nature whatsoever arising out of said Contract or modification thereof, and will execute such further releases or assurances as the City may request.

IN WITNESS WHEREOF, the undersigned has signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

CONTRACTOR: \_\_\_\_\_

(SEAL)

BY \_\_\_\_\_

\_\_\_\_\_  
(Printed name and title of signer)

\_\_\_\_\_, the affiant signing this instrument, being first duly sworn on oath, deposes and says: First, that he/she is the

\_\_\_\_\_(title) of the \_\_\_\_\_  
(name of company)

Second, that he/she has read the foregoing certificate by him/her subscribed as \_\_\_\_\_  
(title) of the \_\_\_\_\_.

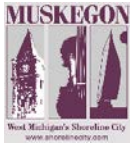
Affiant further states that the matters and things stated are, to the best of his/her knowledge and belief, true.

Affiant: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_

\_\_\_\_\_  
Notary

My commission expires \_\_\_\_\_



3.4 CONTRACTOR AFFIDAVIT - SURETY RELEASE

State of Michigan       )  
                                      ) ss  
County of Muskegon)

\_\_\_\_\_(Contractor)

Being duly sworn, deposes and says that he/she entered into a contract with the City of Muskegon on the  
\_\_\_\_ day of \_\_\_\_\_ for the construction of the City of Muskegon.

Project No.

PROJECT TITLE:

Deponent further says that the work under the terms of the said contract has been completed and all indebtedness incurred by him/her to subcontractors, material suppliers, and persons in his/her employ has been paid in full.

Deponent further says this affidavit is furnished before final payment, or before the ten percent (10%) withheld in accordance with the contract may be reduced.

Deponent further says this affidavit is made pursuant to provisions of Public Act 179 of 1891, section 4, as amended.

Witnesses:

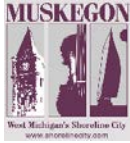
SIGNED

\_\_\_\_\_  
\_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20

\_\_\_\_\_  
Notary Public

Commission expires \_\_\_\_\_



3.5 CONSENT OF SURETY

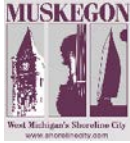
We, as surety on the above described contract, hereby give our consent to the payment to the Contractor as indicated above.

Date: \_\_\_\_\_

Signed: \_\_\_\_\_  
(Attorney-in-fact)

**NOTE: Two completed copies of this or similar form MUST BE SUBMITTED to and accepted by the City of Muskegon BEFORE REDUCTION OF 10% RETAINAGE AND FINAL PAYMENT WILL BE MADE.**

**\*Date contract awarded by the city commission**



### 3.6 AFFIRMATIVE ACTION

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION**  
**TO INSURE EQUAL EMPLOYMENT OPPORTUNITY AND**  
**PROHIBITING DISCRIMINATION IN EMPLOYMENT**  
**(Federal Executive Order 11243)**  
**Michigan: Elliot-Larson Civil Rights Act**

The attention of bidders is particularly called to the requirements for ensuring that employees and applicants for employment are not discriminated against.

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

The contractor will not discriminate against any employee or applicant for employment because of religion, race, color, national origin, age, sex, height, weight, familial status, marital status, disability, sexual orientation or gender identity, or status as a Vietnam Era Veteran. The contractor will take affirmative action to ensure that applicants are employed and that employees are treated fairly during employment, without regard to their religion, race, color, national origin, age, sex, height, weight, familial status, marital status, disability, sexual orientation or gender identity, or veteran background. Such action shall include, but not be limited to, the following: employment, promotion, demotion, or transfer; recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; selection for training, including apprenticeship.

#### LOCAL EMPLOYMENT EFFORT

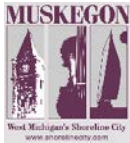
The City of Muskegon requires that the contractor must hire local trades and labor employees from the City of Muskegon, County of Muskegon and/or this SMSA (Standard Metropolitan Statistical Area) for the duration of this project, insofar as these are available to perform the necessary work. Supervisory and/or technical staff officials are exempt from this requirement.

#### LABOR STANDARDS PROVISION

##### EMPLOYMENT AND PREVAILING WAGE AND SALARY REQUIREMENTS

The attention of bidders is particularly called to the requirements covered in these documents concerning the payment of not less than the prevailing wage and salary rates specified, and in regard to conditions of employment with respect to certain categories and classifications of employees.

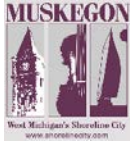
All laborers and mechanics employed by this contract shall be paid unconditionally and not less than once each week, and without subsequent deduction or the rebate on any account (except such payroll deductions as are permitted by the applicable regulations issued by the City of Muskegon).



### 3.7 ADOPTED LABOR STANDARDS PROVISIONS

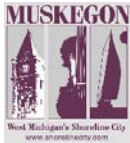
The following clause is applicable unless this contract is exempt under the rules and regulations of the Secretary of Labor issued pursuant to Executive Order No. 11246 of September 24, 1965 (30FR 12319), as amended. During the performance of this contract, the contractor agrees as follows:

- (1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or natural origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous place, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.
- (2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
- (3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (5) The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for the purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with the procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The contractor will include the provision of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance. Provide, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction. The contractor may request the United States to enter into such litigation to protect the interests of the United States.



**3.8 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE**  
(Incorporated by Reference)

The Equal Employment Opportunity Clause required under Executive Order 11246, the affirmative action commitment for disabled veterans and veterans of the Vietnam era, set forth in 41 CFR 60-250.4 the affirmative action clause for handicapped workers, set forth in 40 CFR 60-741.4 and the related regulations of the Secretary of Labor. 40 CFR Chapter 60, are incorporated by reference in this purchase order. By accepting this purchase order, vendor certifies that it complies with the authorities cited above, and that it does not maintain segregated facilities or permit its employees to perform services at locations where segregated facilities are maintained, as required by 41 CFR 60-1.8



### 3.9 ANTI-KICKBACK ACT

**NOTICE TO CONTRACTORS:** The Contractor shall comply with the applicable regulations of the Secretary of Labor, United States Department of Labor, made pursuant to the Copeland AntiKickback Act (Title 40 U.S.C., Section 276c), and any amendment or modifications thereof, shall cause appropriate provisions to be inserted in subcontracts to insure compliance therewith by all subcontractors subject thereto, and shall be responsible for the submission of affidavits required by subcontractor thereunder, except as said Secretary of Labor may specifically provide for reasonable limitations, variations, tolerance, and exemptions from the requirements thereof.

#### Copeland “Anti-Kickback” Act Policy

The Copeland “Anti-Kickback” Act prohibits contractors or subcontractors engaged in building construction or repair from persuading an employee to give up any part of the compensation to which he or she is entitled under his or her employment contract.

**NOTICE TO MUNICIPAL EMPLOYEES:** *Any employee who offers or approves the offer of a business consideration must ensure that it is ethical and proper in all respects. The offer of a business consideration cannot reasonably be interpreted as an attempt to gain an unfair business advantage or otherwise reflect negatively on the reputation of the City of Muskegon and/or the recipient. The business consideration shall not violate this anti-kickback policy.*

The City of Muskegon’s (Muskegon) staff, representatives, and contractors are prohibited from receiving unreasonable compensation from grantors, grantees, contractors, applicants, or any other person or individual for the purpose of receiving preferential treatment of any kind. The guidelines below define Muskegon’s policy toward kickbacks and the penalties for offering kickbacks to Muskegon employees, representatives or contractors.

**Definition: “Kickback”** for the purposes of this policy (excluding de minimis gifts), means substantial money, fees, commission, gifts, gratuity, object of value, or offer of employment, which is provided or offered, directly or indirectly, to any City of Muskegon employee, contractor or contracted employee, vendor or vendor employee, or consultant for the purpose of improperly obtaining or rewarding favorable treatment in connection with a City of Muskegon project or contract.

#### **This policy prohibits any person or organization from:**

Providing or attempting to provide or offering to provide kickbacks;  
Soliciting, accepting or attempting to accept kickbacks; or  
Including, directly or indirectly, the amount of kickbacks in any contract awarded by City of Muskegon, contractors, or subcontractors.

***Any employee found to be in violation of this policy will be subject to an investigation by the City of Muskegon’s Compliance Officer to determine if the policy was infringed upon. Depending on the results of the investigation, appropriate discipline will be determined. The employee may be subject to civil or criminal penalties as provided under U.S. law.***

Any applicant, grantee, contractor, consultant, or vendor in violation of this policy will be prohibited from participation in any City of Muskegon project, contract, or activity and may be subject to additional civil or criminal penalties as provided under U.S. law (Title 40 U.S.C., Section 276c).

Muskegon reserves the right to recover damages from any person who knowingly engages in such prohibited conduct and from any person whose employee, contractor, or subcontracted employee provides, accepts, or charges a kickback.



CITY OF MUSKEGON  
OFFICE OF THE CITY ENGINEER

STANDARD CONSTRUCTION SPECIFICATIONS

**DIVISION 2**  
**MATERIALS**

Approved by the City Commission  
February 09, 2010

## DIVISION 2 MATERIALS

All Materials, Unless Specified Otherwise, Shall conform to the most Current Michigan Department of Transportation Standard Specifications for Construction or subsequent revision thereof.

### SEWER PIPE

Vitrified Clay Pipe Extra Strength - Vitrified Clay Pipe Extra Strength shall conform to the requirements of A.S.T.M. designation C-700 E.S. or subsequent revision thereof.

Polyvinyl Chloride (PVC) Pipe - Polyvinyl Chloride (PVC) Pipe shall conform to the requirements of A.S.T.M. designation D-3034 SDR 35, D-3034 SDR 26 or subsequent revision thereof.

Reinforced Concrete Pipe - Reinforced Concrete Pipe shall conform to the requirements of A.S.T.M. designation C-76-88 26 or subsequent revision thereof.

### SEWER PIPE JOINTS

Vitrified Clay Pipe Joint - Vitrified Clay Pipe Joint shall conform to the requirements of A.S.T.M. designation C-425 for flexible compression rubber gasket or subsequent revision thereof.

Polyvinyl Chloride (PVC) Pipe Joint - Polyvinyl Chloride (PVC) Pipe Joint shall conform to the requirements of A.S.T.M. designation D-3212, F-477 for flexible compression rubber gasket or subsequent revision thereof.

Reinforced Concrete Pipe Joint - Reinforced Concrete Pipe Joint shall conform to the requirements of A.S.T.M. designation C-443 for flexible compression rubber gasket or subsequent revision thereof.

### WATERMAIN

Ductile Cast Iron Pipe - Ductile Cast Iron Pipe shall conform to the requirements of the current A.N.S.I. / A.W.W.A. Specification C-151 / A 21.51. Pipe thickness shall be designed in accordance with A.N.S.I. / A.W.W.A. C-150 / A 21.50. Pipe shall have cement mortar lining and seal coating in accordance with A.N.S.I. / A.W.W.A. C-104 / A 21.4 or subsequent revision thereof.

Fire Hydrants - Fire Hydrants shall conform to the requirements of the current A.N.S.I. / A.W.W.A. Specification C-502 Standard for Dry-Barrel Fire Hydrants, and the National Board of Fire Underwriters Laboratories Standard UL246, and Factory Mutual 1510 or subsequent revision thereof.

Valves - Valves shall conform to the requirements of the current A.N.S.I. / A.W.W.A. Specification C-500 Standard for Iron Body, Bronze Mounted, Double Disk, Parallel Seat, A.N.S.I. / A.W.W.A. Specification C-515 Standard for Resilient Seated Gate Valve and A.N.S.I. / A.W.W.A. Specification C-504 Standard for Butterfly Valves or subsequent revision thereof.

Watermain Fittings - Watermain Fittings shall be Ductile Cast Iron and conform to the requirements of the current A.N.S.I. / A.W.W.A. Specification C-153 / A 21.53. Pipe Fittings shall have cement mortar lining and seal coating in accordance with A.N.S.I. / A.W.W.A. C-104 / A 21.4 or subsequent revision thereof.

Watermain Joints - Watermain Joints shall conform to the requirements of the current A.N.S.I. / A.W.W.A. Specification C-111 / A 21.11. All Mechanical Joints shall be restrained, Glands shall be manufactured of Ductile Iron conforming to the requirements of the current A.S.T.M. A-536-80. Restraining devices shall be Ductile Iron heat treated to a minimum hardness of 370 DHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to A.N.S.I. / A.W.W.A. A-21.11 and A.N.S.I. / A.W.W.A. C-153 / A-21.53. Twist-Off nuts shall be used to insure proper actuating of the restraining devices. The mechanical joint restraint device shall have a working pressure of at least 250 PSI with a minimum safety factor of 2:1 and shall be EBAN Iron, Inc. Megalug or equal or subsequent revision thereof. Fast-Grip Gaskets shall conform to the requirements of the current A.N.S.I. / A.W.W.A. Specification C-111 / A 21.11. The gasket shall have stainless steel wedges molded or inserted into it, the wedges will have sharp teeth on the inner surface for gripping the spigot of the pipe.

Water Service Material - Water Service Material shall conform to the requirements of the current A.N.S.I. / A.W.W.A. Specification for the Material Specified or subsequent revision thereof.

## EROSION CONTROL

Erosion Control, Inlet Protection, Fabric Drop - The work shall consist of furnishing and installing Erosion Control Inlet Protection Fabric Drop and Shall conform to the most Current Michigan Department of Transportation Standard Specifications for Construction or subsequent revision thereof. Payment shall be at the unit price as described in the proposal and shall represent payment in full for the Erosion Control Inlet Protection Fabric Drop installed and maintained. No other payment will be allowed.

## MEMBRANE SEALNT

Materials - material shall be self-adhering membrane sealant similar to PETRO-TAC or approved equal.

CITY OF MUSKEGON  
OFFICE OF THE CITY ENGINEER

STANDARD CONSTRUCTION SPECIFICATIONS

**DIVISION 12**  
**SEWERS**

Approved by the City Commission  
February 09, 2010

DIVISION 12  
SEWERS

DEFINITION - As used herein, sewers shall be considered to mean all pipes or conduits intended to transport storm water or waste water and lying within public rights-of-way or easements, including all appurtenances.

CONSTRUCTION METHODS - Construction Methods. Unless Specified Otherwise, Shall conform to the most Current Michigan Department of Transportation Standard Specifications for Construction or subsequent revision thereof.

MATERIALS - All materials furnished by the Contractor must conform in all respects to the requirements of Division 2 Materials. Where reference specifications are used, they shall be considered as referring to the latest issue.

Pipe Joints - All Pipe Joints must conform in all respects to the requirements of Division 2 Materials. Where reference specifications are used, they shall be considered as referring to the latest issue. When it is necessary to connect new pipe to existing pipe the connection will be made with the appropriate size Fernco. The Fernco connection unless specified shall be included in the payment for the new sewer pipe. When it is necessary to connect new pipe to existing structures, the connection unless specified shall be included in the payment for the new sewer pipe.

Manhole, Catch Basin & Inlet Materials

- a. Concrete: For manhole bases, catch basin bases and inlets shall develop compressive strength of 3,500psi or better in 28 days.
- b. Brick: ASTM C-139, Lime-cement, laid radially.
- c. Mortar and Plaster: U-1 of ASTM C-55, one part Portland cement, one part Lime and three parts sand, or a prepared mortar mix. (ASTM C-91-Masonry cement).
- d. Manhole Steps: Shall be plastic or cast iron, 10 inch x 10 inch overall, tread depth of 5 inches, tread cross section – 1 inch x 1 inch, with 2 ½-inch average rail height.
- e. Manhole Castings shall be cast iron and conform to East Jordan no. 1045 or approved equal, The Manhole Cover shall have the City of Muskegon Logo cast into it.
- f. Precast Manhole and Catch Basin Units: ASTM C-478 or ASTM C-76 pipe. Joints for precast sections shall be O-ring rubber gasket joints similar to ASTM C-443. Holes for pipe openings shall not be more than 6 inches larger in diameter than the outside diameter of the pipe and shall be filled with non-shrink mortar. Sanitary sewer manholes shall have a Kor-N-Seal, or approved equal, flexible pipe-to-manhole connection, the connection unless specified shall be included in the payment for the new precast manhole. Precast bases shall be set on a 4" thick pea-gravel base.

Disposition of Defective Materials - Any material found during the progress of the work to have cracks, flaws or other defects, will be rejected by the Engineer. All defective material furnished by the Contractor shall be promptly removed by him from the site. Any material furnished by the Owner and found defective shall be set aside by the Contractor and removed from the site by the Owner.

## LINE AND GRADE

Stakes by Owner - The Owner will furnish all line and grade control. Re Staking required by changes or delay in Contractor's schedule or as a result of the Contractor's negligence shall be paid for by the Contractor.

### Line and Grade Control

Laser Beam: Line and grade controls will be established by the Owner at each laser setup point and at 25-foot, 50-foot and 100-foot points, and thereafter at 100-foot intervals to the next manhole. All other lines and grades necessary for the location and construction of the work, shall be established and maintained by competent personnel employed and paid by the Contractor. The laser beam projector is to be rigidly mounted to its support platforms(s). The Contractor is encouraged to control line and grade for the sewer by using the laser beam through the sewer being laid. Equipment must incorporate above-ground control to assure positive alignment. Either a laser beam projector or surveyor's transit will be required for line control. Any other equipment necessary to control atmospheric conditions in the pipe to keep line and grade to acceptable standards of accuracy shall be furnished and operated by the Contractor.

The laser beam method selected must be approved by the Engineer, and is to be operated by competent personnel employed and paid by the Contractor. Prior to placement of each section of pipe, the laser target shall be repositioned in the pipe previously laid to recheck beam accuracy. If beam projection exceeds 600 feet, line and grade checks will be required at 50-foot intervals.

CONSTRUCTION METHODS - Construction Methods. Unless Specified Otherwise, Shall conform to the most Current Michigan Department of Transportation Standard Specifications for Construction or subsequent revision thereof.

CONCRETE CRADLE - Where concrete cradle is required, it shall be constructed as shown on the plans, and the concrete shall conform to the most Current Michigan Department of Transportation Standard Specifications for Construction or subsequent revision thereof. And as specified on the plans.

JOINTS ON ALL PIPE: - Joints on all Pipe shall be painted with Manufacturer's approved lubricant or solvent and the joint fully made. If difficulty is encountered in seating, the joint shall be disassembled and carefully inspected for obstructions and proper dimensions.

## MANHOLES, CATCH BASINS AND INLETS

Manholes, Catch Basins and Inlets - All Manholes, Catch Basins and Inlets shall be precast, unless approved otherwise, the precast units shall be installed on a 4" pea gravel sub base with an even and full bearing, the pea gravel shall be included with the structure for payment.

Manhole Invert - Concrete Flow Channel shall be placed in all Manholes, The flow channel shall be the same diameter as the pipe, the concrete shall be formed to the spring line of the pipe and sloped up the inside manhole circumference. Or the pipe can be laid through the manhole. Then concrete shall be formed to the spring line of the pipe and sloped up the inside manhole circumference. The pipe above the spring line shall then be removed. The concrete shall conform to the most Current Michigan

Department of Transportation Standard Specifications for Construction or subsequent revision thereof. Or as specified on the plans.

Castings - Castings shall be set accurately to grade. Manhole castings in established pavements shall fit both the grade and crown of such pavements. Catch basin grates in concrete curb and gutters shall be set ½ inch below the gutter grade, and shall be in a plane parallel with the gutter pan.

## CONNECTIONS

Existing Sewers - Where a manhole exists at the point of connection of new and existing sewers, it shall be repointed and any loose bricks and/or blocks in the walls of the existing manhole shall be re-laid. The cost of such work shall be included in the contract price for the new sewer unless payments are specifically provided in the proposal. Connections of new sewers to existing sewers when encountered in construction and not shown on the plans shall be made where ordered by the Engineer. Such connections shall be made within a manhole except for house service and drain connections. When such sewer connections are made within an existing manhole, The cost of such work shall be included in the contract price for the new sewer unless payments are specifically provided in the proposal.

When connections are made with sewers carrying sewage or water, a flume or dam must be installed and pumping maintained as necessary to keep the new work dry until the joints and the concrete have had sufficient time to set.

Future Sewers - Connections for future sewers indicated on the plans shall be plugged or bricked off at the ends. The ends of such future connections in sizes 4" through 21" shall be sealed with an appropriate sized disc and with the same type of jointing material used on the new sewers. For sewers 24" and larger, the end of the sewer shall be bricked off and plastered on the outside. The cost of such work shall be included in the contract price for the new sewer unless payments are specifically provided in the proposal.

Services - Wyes for house service connections shall be placed at locations indicated in the field by the Engineer. All house service connection openings shall be "Y" branches with the spur set on the barrel of the pipe at an angle of 45° for pipe sizes to 24 inch. Tees or wyes may be used for pipe 24 inch and larger. Service connection openings in concrete pipe shall be cast in the upper quarter of the pipe with spur having standard bell dimensions for the service connection. Joint type and material on the services shall be the same as specified for the sewer. The ends of house service shall be closed with standard plugs or caps securely blocked to resist test pressure and sealed with the same jointing material used on the service pipe. House service connections to an existing sewer shall be made with the appropriate size Firinco style connection. The caps and firinco connectors shall be included in the contract price for the new sewer unless payments are specifically provided in the proposal. The location of new house service stubs at the lot line shall be marked by a 2 inch by 2 inch wooden stake which shall extend vertically from the plugged end of the service. The stake shall be cut off 4 inches below grade and a ½" x 2' steel rod placed

along side the wood stake. The Contractor shall assist the engineer for service connection measurements, measurements are to be taken to the nearest downstream manhole, and the ends of services by measurements from permanent surface witness points. House services shall be laid at right angles to the street line unless otherwise directed and shall be laid on a uniform line unless otherwise directed and shall be laid on uniform line and grade from the riser to the property line unless otherwise specified. The minimum depth at the property line shall be 8 feet below the approved street grade centerline. Where this depth cannot be obtained, the house connection shall be laid with a minimum rise of 1/8 inch per foot between the sewer and the property line. Depths greater than 8 feet at property line may be required where basement elevations are lower than normal.

## TESTING

Pipe Testing - All tests shall be under the supervision of the Engineer, Prior to connecting any active sewer services or extending services beyond the property line, unless specified otherwise, the new sewers and services shall be tested for alignment and leakage. All plastic pipes shall have mandrel testing performed 30 days after placement; the mandrill size shall be 95% of the manufactures actual inside diameter. The sewer shall be thoroughly cleaned before the Engineer is requested to witness or perform any tests.

Alignment - Sewers must be straight between manholes and will be tested for straightness by video taping from manhole to manhole, the video taping will be done by the City at on cost to the Contractor.

Leakage - Unless otherwise called for in the project specifications, the maximum allowable infiltration/exfiltration shall be 299 gallons per day, per inch of diameter, per mile of pipe for ASTM C-443 and ASTM C-425 joints. The joints shall be tight and any visible leakage in the joints and leakage in excess of that specified shall be repaired.

- a. Water Testing: The Contractor shall furnish, install and maintain a "V" notch weir, tightly secured to the low end of each section of sewer, so that the infiltration may be checked. When the infiltration is demonstrated to be within the allowable limits, the Contractor shall remove the weirs and all framing, leaving the sewers and manholes clean and free of any debris.

Exfiltration tests will be required only when the natural or induced ground water table is less than 2 feet over highest point in pipeline under test, including house services. Exfiltration tests shall be made by filling the line to a minimum depth of 2 feet above the high point of the line under test, with allowance for ground water level, and measuring the water required to maintain this level.

- b. Low Pressure Air Testing: The Contractor shall furnish all equipment and personnel to conduct an acceptance test using low pressure air. Pipe shall be cleaned and all outlets plugged and securely replaced before beginning test.

METHOD OF MEASUREMENT - The length of sewer will be measured in lineal feet from center to center of manholes. The house connections will be measured in lineal feet horizontally, from the center line of the sewer to the end of the pipe.



## BASIS OF PAYMENT

Sewer Pipe - "Vitrified pipe sewer," "Reinforced concrete pipe sewer," and "Plastic pipe sewer" of the specified diameters will be paid for at the contract unit price per lineal foot, which price shall be payment in full for all excavation, backfill, disposal of excess material, furnishing materials, (except when the City furnishes all or part of the materials) including wyes, tees and other fittings, and installing the pipe complete.

House Connections - House connections will be paid for at the contract unit price per lineal foot for installing pipe complete.

Concrete Cradle - "Concrete Cradle" will be paid for at the contract unit price per lineal foot for the work complete.

## LOW PRESSURE AIR TEST

### MINIMUM HOLDING TIME IN SECONDS REQUIRED FOR PRESSURE TO DROP FROM 3-1/2 TO 2-1/2 PSIG

	PIPE DIAMETER														
	4"	6"	8"	10"	12"	15"	18"	21"	24"	27"	30"	33"	36"	39"	
25	4	10	18	28	40	62	89	121	158	200	284	299	356	418	
50	9	20	35	55	79	124	178	243	317	401	495	599	713	837	
75	13	30	53	83	119	186	267	364	475	601	743	898	1020	1105	
100	18	40	70	110	158	248	356	485	634	765	851	935			
125	22	50	88	138	198	309	446	595	680						
150	26	59	106	165	238	371	510								
175	31	69	123	193	277	425									
200	35	79	141	220	317										
225	40	89	158	248	340										
250	44	99	176	275											
275	48	109	194	283											
300	53	119	211												
350	62	139	227												
400	70	158													
450	79	170													
500	88														
550	97														
600	106														
650	113	170	227	283	340	425	510	595	680	765	851	935	1020	1105	

CITY OF MUSKEGON  
OFFICE OF THE CITY ENGINEER

STANDARD CONSTRUCTION SPECIFICATIONS

**DIVISION 13**  
**WATERMAIN**

Approved by the City Commission  
February 09, 2010

### DIVISION 13 WATERMAIN

GENERAL - As used herein, watermains shall be considered to mean all pipes, conduits, and all necessary appurtenances to transport water, lying within public rights-of way or easements. All materials outlined in this Division shall be manufactured in the United States or be otherwise approved by the City Engineer.

SCOPE - The Contractor shall, unless otherwise noted, furnish all materials, equipment, tools and labor necessary to accomplish the work required under this contract in a safe and reliable manner, and all contract items are to be placed in proper operating conditions in full conformity with the contract and proposal, detail drawings, specifications, engineering data, instructions, and recommendations of the equipment manufacturer and materials as approved by the engineer.

LOCATION - The location, grade and the approximate depth of the proposed watermain is shown on the plans with line and grade to be provided by the City of Muskegon unless otherwise noted. The Engineer reserves the right to make minor changes in alignment, grade and location of appurtenances, when such changes deemed necessary or advantageous. Major changes will be accomplished as described in Part 3, Section 1 Item 39 page 45 of the City of Muskegon Standard Contract.

CLEAN-UP - Surplus materials and appurtenances furnished by the City shall be delivered by the Contractor to the Public Service Building. Confirmation and/or receipts should be obtained from the Stockroom Manager and reported to the Project Inspector. All other surplus construction material shall be removed from the site by the Contractor. Trench backfill and surface replacement shall follow pipe laying operations so that the extent of open trench shall not exceed 500 feet, unless specific authorization is obtained from the Engineer. The finished site shall be free of debris and neat appearance.

CONTRACTORS "NOTICE TO PROCEED" - After receiving the "Notice to Proceed" the contractor shall give the City Engineer a minimum of 48 hours notice of start to allow for survey layout and assignment of inspection personnel. Whenever work is to be done by City forces or co-ordination with City forces, the contractor shall provide a minimum of 48 hours advance notice to the department from which the work is requested.

MATERIALS - All materials furnished by the Contractor must conform in all respects to the following standards. (Where reference specifications are used, they shall be considered as referring to the latest revised issue).

The Contractor shall be responsible for all material furnished and shall replace, at his own expense, all such material found defective during the life of the contract. For material furnished by the City of Muskegon, the Contractor shall become responsible from the time of delivery, and shall reject any defective materials within three calendar days of delivery, and such materials shall be replaced by the City. Any defective material furnished by the City and installed by the Contractor without discovery of such defect will, if found defective prior to final acceptance, be replaced with sound material by the owner. The Contractor, however, shall at his own expense, furnish all labor, equipment and supplies necessary to facilitate the above replacement.

The Contractor shall furnish to the Engineer a manufacturer's certification that all materials meet minimum requirements as detailed in the material specifications references (refer to paragraph 13.02.02). The Contractor's unit prices will be assumed to include an allowance for this responsibility.

All pipe and related items shall be stored as recommended by the manufacturer, on suitable timber skids free from contact with the ground. Gaskets shall be stored in as cool, clean and shaded a place as practicable.

Unloading shall be made so as to avoid damage to the castings or pipe. Under no circumstances shall materials be dropped. All special handling equipment and temporary supports shall be furnished by the Contractor.

No damaged or broken pipe shall be used, no damaged or broken cement lining in pipe or fittings shall be used, In the event coatings are damaged, the damaged area shall be recoated with an approved coating, at the Contractors expense, in a manner approved by the Engineer.

The watermain pipe shall be handled by means of slings. No hooks or loader forks shall be permitted to come in contact with joint rings or be inserted in the ends of the pipe and fittings for any reason.

Any material found defective or flawed during the progress of work will be rejected and removed from the site. No attempt will be made to repair defective materials without written consent of the Engineer.

#### Watermain Specification Reference

(a) Ductile Iron, Push-On Joint Pipe, 3”– 64” ANSI/AWWA C151/A21.51-09

(b) Push-On Joint Detail, ANSI / AWWA C111 / A21.11-12

(c) Ductile Iron, Mechanical Joint Pipe, 3”– 24” ANSI/AWWA C151/A21.51-09

(d) Mechanical Joint Detail, ANSI / AWWA C111 / A21.11-12

(e) Cement Lining, ANSI / AWWA C104 / A21.4-13 (Standard Thickness)

(f) Ductile Iron Pipe Wall Thickness Determination, ANSI/AWWA C150/ A21.50-14

(g) Ductile Iron, Flanged Joint Pipe, 3”– 64” ANSI/AWWA C111/A21.11-12 and ANSI/AWWA C151/A21.51-09

(h) Mechanical Joint Fittings, ANSI / AWWA C153 / A21.53-11 and ANSI/ AWWA C111/A21.11-12

(i) Push-On Joint Fittings, ANSI / AWWA C110 / A21.10-12 and ANSI/ AWWA C111/A21.11-12

(j) Flanged Fittings, ANSI/AWWA C110/A21.10-12

(k) Flanges, ASA-B16.1 Standard Class 125

(l) Copper Pipe, ASTM Spec B88-55 “Type K”

(m) Retainer Glands EBAA MEGALUG 1100 Series or Equal

(n) Fire Hydrants, ANSI/AWWA C502-14

### Provisions for Electrical Thawing

Serrated Silicon Bronze Wedges - Two per joint for 3" through 12" pipe, four for larger pipe. Each wedge is to be driven into the opening between the plain end and the bell until snug. When four wedges are used, they are inserted side by side, in pairs. Wedges can be used with push-on joints only.

Copper Cable Bond Conductor - Installation of copper cable bond conductor across the joints of push-on and mechanical joint pipe and fittings. The copper cable shall be a minimum AGW size #4 copper cable, The copper cable shall be welded to the pipe on push-on joints and have cable ends that fit standard watermain bolts for mechanical joints. The copper cable shall be of sufficient flexibility to withstand ground and pipe movement after installation.

Copper Strap Bond Conductor - Installation of copper strap bond conductor across the joints of push-on joint pipe. The copper jumper strips shall be 1/16" x 3.4", 48 ounce soft copper, bolts shall be 5/16" x 3/4" silicon bronze hex head bolt and nut. The copper strap shall be welded to the pipe and be of sufficient flexibility to withstand ground and pipe movement after installation.

Conductive Push-On Gaskets - These gaskets may be used in lieu of wedges, cable or strap bond conductors. Metal contact strips which are molded or inserted into the gasket must insure positive electrical contact between pipes. A thorough cleaning of gasket seating surface should be performed prior to assembly.

Payment - payment for provisions for electrical thawing shall be included in the cost of the new watermain. No other payment shall be made.

Fire Hydrant - A 5 1/4" M.V.O. East Jordan (5BR 250) hydrant shall be furnished and installed in the locations shown on the drawings and should be placed in a plumbed vertical position. Hydrants shall be of the non-compression type, and shall conform to **ANSI / AWWA C502-14** as last adopted, and any Underwriter Laboratories requirements. Hydrants shall have two 2-1/2" hose connections and one 5" "STORZ" fitting; their barrels shall be 8-1/2 inches in diameter (minimum) with 5-14" valve openings and shall open to the left utilizing a 1" nut (measured flat to flat). All hydrants shall be painted red. Threaded connections shall conform to the City of Muskegon Standard Big Six (six threads per inch). Hydrant inlets shall have 6" diameter mechanical joint connections unless otherwise specified on the plans or in the special provisions. The hydrant assembly shall have all mechanical joints restrained with ductile iron MEGALUG glands. The hydrant shall be so designed so that the direction of the nozzles can be reoriented without digging up the assembly, and so that height extensions may be added at a later date. Hydrants shall have bronze interior parts including operating stems. Bronze to bronze main valve seats shall be required if seat removal is necessary for removing the valve assembly. All hydrants shall have a minimum bury of 6-1/2 feet. If the operating screw is located on the top it shall be bronze. **Hydrants shall come with dual drain outlets conforming to AWWA C502-14, Section 4.8.2. When hydrants are installed below the water table, or in soils that are not permeable, the brass drain hole bushing shall be removed and a threaded brass plug inserted into the drain hole (weep hole) as directed by the engineer.**

Gate Valves - All valves shall be iron body, bronze mounted, double disc. Parallel seat or compression resilient seated, with a 2" operating nut open to the right, with the direction indicated by an arrow cast on to the valve or the operating nut. Generally, end connectors shall be mechanical joint for all exterior ground-buried valves, unless otherwise specified. All valves shall have bronze stem, o-ring stem seal, non-rising stem, the stem shall have continuity with the body, and shall have a clean waterway equivalent in area, when open, equal to that of the connecting pipe. All valves shall be of new construction and complete with operating equipment and other appurtenances necessary for operation. All valves shall be designed to maintain a minimum 150 pound working pressure, tested at 300 pounds for sizes 14" through 48" or minimum 200 pound working pressure and tested at 400 pounds for sizes 2" through 12" and manufactured as per ANSI / AWWA C500 and C509. The valves shall be shipped as fully assembled as practicable. The exposed flanges and mounting pads shall be protected by wooden pieces bolted to them. All necessary skids and lifting devices shall be provided. Non-attached items shall be packed in boxes and properly labeled for assembly. The contractor may be required to furnish the services of a competent factory-trained serviceman to check final installation and supervise original start-up and operation of the equipment specified. Such services shall be included in the cost of the valve.

Butterfly Valves - Butterfly valves shall be manufactured to conform in all respects to the latest revisions of ANSI / AWWA, designation C-504, and coated inside and outside with standard bitumastic coating for water mains. The body, disc, shaft, seats, bearings and operators shall be designed based on Class 150B and may be the short or long body type. All butterfly valves shall have a working pressure of 150 psi, hydrostatically tested at 300 psi, and bubble-tight tested at 150 psi. The seat-ring shall be made of rubber body or disc mounted, and shall be adjustable and field replaceable in sizes 16" and larger. The shaft may be of the through type or stub type and shall be marked on the end to indicate the position of the valve disc with respect to the shaft and the shaft shall have continuity with the body. The shaft seals shall be of the "split-V" or "Chevron" type. The valve disc shall be of corrosion-resistant alloy cast iron. The valve disc shall be offset so as to prevent valve flutter in the full open position. The valves shall be equipped with a stainless steel stop in the operator to prevent the disk from rotating through the closed position. The valve operator shall be permanently lubricated and sealed for buried service and shall be equipped with a two-inch square operating nut. The operator shall be constructed such that the valve will open when the nut is turned to the right or in a clockwise direction, with the direction indicated by an arrow cast onto the operating nut. Operators for valves 16" and 20" in size may be of the traveling-nut or worn gear type. Operators for 24" and larger shall be of the worn gear type. Generally, end connectors shall be mechanical joint, unless otherwise specified. All valves shall be of new construction and be complete with all operating equipment and other appurtenances necessary for operation. The contractor may be required to furnish the services of a competent factory-trained serviceman to check final installation and supervise original start-up and operation of the equipment specified. Such services shall be included in the cost of the valve.

Tapping Sleeve and Valve - Tapping Sleeves shall be full stainless steel sleeve as manufactured by Romac Style SST or approved equal, meeting the requirements of ANSI B16.1 Class 125 and in accordance with MSS-SP60, the sleeve will be required when tapping into existing watermain. The valve shall conform to City of Muskegon Standard Specifications 13.02.05. The joint between the sleeve and valve will be flanged. The Contractor shall present for approval detailed shop drawings of the assembly. Payment shall be at the unit price as described in the proposal and shall represent payment in full for the sleeve, valve and box completely installed.

Valve Boxes - Valve boxes shall be of ductile cast iron, adjustable, and furnished complete including cover, top section, center section and base. Valve boxes shall be not less than five inches in diameter with a minimum adjustment of 24 inches above and below proposed grade. The covers shall have the appropriate name cast on it ("WATER"). All parts of valve boxes, base and covers shall be coated by dipping in hot bituminous varnish. The valve box shall be placed centered on the valve nut and be placed in a plum vertical position. Payment for the materials and labor to install this item shall be included in the cost of the valve, unless otherwise specified.

Adjusting Water Valve Boxes - The water box materials shall be placed centered on the valve nut and be placed in a plumb vertical position. Pavement placement shall be the same as for adjusting manholes, (Section 14.04) unless otherwise specified. No payment will be allowed for adjusting water valve boxes either existing or new unless stipulated in the proposal.

Fitting Restraints - If plugs, caps, tees and bends which deflect 11-1/4 degrees or more, shall be provided with suitable restraints to prevent movement, in a manner acceptable to the Engineer. The restraint shall be applied to joints in each direction from the fitting according to the pipe restraint schedule or as shown on the construction plans in order to resist the thrust of the test pressure. Details of all restraints, unless specified, are to be submitted to the Engineer for approval. All joint restraints shall be considered incidental to this section of work, and included in the cost of the fitting. When specified as being necessary MEGALUG retainer glands shall be used for all ductile iron mechanical joint pipe and fittings through 24" and fast-grip gaskets for push-on pipe. For sizes larger than those maximums, self-restraining joints such as Superlock, or Lockfast pipe shall be used, or as specified by the Engineer.

Retainer Glands - Retainer Glands shall conform to 2.04.05 specification for watermain joints. Payment for this item shall be included with the new pipe and fittings. No additional payment will be allowed.

Flanged Joints - Where specified. Flanged joints shall be drilled using the Standard 125 pound Template.

Plugs and Caps - The caps (Tyler 5-155, or approved equal) plugs (Tyler 5-152, or approved equal) shall be ductile cast iron, and be 2" tapered with plug. Payment for caps and plugs in place shall be bid price as found in the proposal, or otherwise specified. No payment will be made for temporary caps and plugs used for testing purposes.

## CONSTRUCTION METHODS

General Excavation - On any contract where the Engineer will supply grades, the Contractor will notify the Engineer at least 48 hours in advance. The trench shall be excavated true to line and grade and shall be of sufficient width to provide adequate working space for making joints, compacting back fill, sheeting, pumping and of sufficient depth so that the top of pipe will have a minimum cover of 5-1/2 feet as measured from the established or proposed gutter grade, or as measured from the proposed or existing ground elevation (six feet from the top of curb).

The Contractor shall take adequate precautions to protect all grade stakes. The Contractor shall be responsible for the cost of replacement of stakes which are damaged or lost through his negligence.

There shall be a minimum of six inches of clearance on each side of the barrel of the pipe and a maximum width of the trench at the level of the top of the pipe of not more than a distance equal to the O.D. of the pipe plus 24 inches. On paved streets, the pavement shall be cut by means of concrete saws to a neat and straight line along the top edge of the intended trench opening, and all sawing shall be included in the cost of trench repair.

All material in excess of that needed or which is unusable shall be disposed of at such locations as the Engineer may direct. If the disposal site has been specified in the special provisions, the cost of disposal shall be included in the lineal foot cost of the pipe. If no disposal site has been specified, all excess material becomes the property of the Contractor.

The Contractor shall call Miss Dig 3 working days (Excluding Sat. Sun. and Holidays) before digging (1-800-482-7171) for the location of existing under ground systems. The Contractor is liable for all damages to existing underground systems.

Sheeting and Bracing - When the depth of the trench or soil conditions require, or to prevent damage to adjacent structures and property, or to protect workmen, the sides of the trench shall be sheeted, shored and braced adequately to prevent sliding or caving. All underground utilities crossing the trench or running parallel to the proposed pipe, shall be supported and braced in an approved manner. All materials and labor for sheeting, shoring and/or bracing shall be furnished by the Contractor and will be considered incidental to the work. The Contractor is fully responsible for the sufficiency of such supports and for the integrity of his work. In the removing of the sheeting or bracing, special care shall be taken to prevent any caving of the sides of the excavation and to prevent damage to the completed work or to adjacent property, and to prevent loss of density in the pipe bedding material.

Obstructions - Wherever obstructions, not shown on the plans, are encountered and interfere to such an extent that an alteration to the plan is required, the Engineer shall be notified at once and shall make such changes in the plans as he deems necessary. If such a change results in a significant increase in the amount of work required of the Contractor, such a change shall be paid by change order to the contract, only to the extent that his change in work is not covered by contract unit prices.

Deflections - Deflections for obstructions or other purposes shall be governed by these allowable limits in the table presented below, unless further deflection is allowed by written communication from the Engineer.



## DEFLECTION TABLE

Unrestrained Connections only

<u>Pipe Size</u>	<u>Deflection in inches</u> <u>Per 20 foot length</u>
3	27"
4	27"
6	22"
8	17"
10	17"
12	17"
14	11"
16	11"
18	9"
20	9"
24	7"

Laying Condition - Laying Conditions Unless Specified Otherwise, Shall conform to the most Current Michigan Department of Transportation Standard Specifications for Construction, Standard Plan for Utility Trenches, R-83-C, or subsequent revision thereof for the trench detail specified.

Unsuitable Conditions - Where unstable soil is encountered at pipe grade, Trench undercut and backfill will be done and Unless Specified Otherwise, Shall conform to the most Current Michigan Department of Transportation Standard Specifications or subsequent revision thereof.

Pipe Care - Care shall be taken to keep the interior of the pipe clean and free from dirt and other foreign materials. Bulkheads shall be used at open ends of the pipe to insure cleanliness, especially at the end of each day's work. If there is water in the trench, a water-tight plug will be utilized, and the seal must remain in place until the trench is pumped completely dry. The end shall also be plugged whenever the pipe is left unattended. The pipe shall be laid with the bell ends facing in the direction of laying, unless otherwise directed by the Engineer.

Dewatering - When dewatering is encountered, Unless Specified Otherwise, Shall conform to the most Current Michigan Department of Transportation Standard Specifications or subsequent revision thereof.

Push-On Joint Assembly - It is essential that the gasket groove be clean and free of foreign matter prior to lubrication and gasket installation. Wire brushing, wiping or flushing may be required. The cleaned gasket groove shall be lubricated to make gasket installation easier and to assist in proper positioning of the gasket. The gasket must be correctly positioned within the groove. Check with fingers to be sure of correct placement. Lubricate the gasket over its entire inner surface; as well as to the bevel of the plain end. The joint should be assembled with both pipes reasonably straight alignment. Any deflection should be made after the joint is assembled. On any field cut pipe, the outside edge must be beveled and smoothed as any sharp corner may cause gasket damage. Straight alignment is especially important when assembling field cut pipe. Field inspection by the Engineer must be accomplished before a field cut pipe may be joined.

During cold weather installations, keep gaskets warm prior to placement within the bell, to reduce their stiffness.

Mechanical Joint Assembly - The inside of the bell and the plain end of the pipe must be thoroughly cleaned of foreign matter and wire brushed if necessary. All surfaces and gaskets should be brushed over with soapy water. A rubbed gasket and follower gland should be placed on the plain end "seated" in the mechanical flanged bell; and then the gasket firmly and evenly pressed into the bell. After the gland is in position for bolting, insert all bolts and make all nuts finger-tight. Keeping the plain end centrally located within the bell, begin tightening bolts, bringing all bolts up evenly at all points around the bell flange. Alternate bolts from side to side until all bolts are uniformly tight within the correct range of torque of 75 to 90 foot pounds (4" thru 24" sizes). If effective sealing is not attained at the maximum torque level, the joint should be disassembled and reassembled after thorough cleaning. Megalug style retainer glands shall be used on all mechanical joints, after all gland bolts are tight, bring all retainer bolts up evenly around the pipe, tighten all retainer bolts by alternating tightening on opposite sides of the pipe until the twist-off nuts snap off.

Existing Water Main Connections - Existing water main connections may be oversized. The Contractor shall confirm the size of the existing water main prior to the connections. No additional payment shall be made if over sized fittings are required.

Cut and Cap \_\_\_ Inch Watermain - The existing \_\_\_ inch watermain as shown on the construction plans, shall be cut and capped with a ductile iron, mechanical joint cap and restrained with retaining glands. The existing watermain will be thrust blocked in a manner to prevent movement of the existing watermain. Engineer will determine if the contractor's method of thrust blocking is acceptable

The completed work, Cut and Cap, \_\_\_ inch Watermain as shown on the construction plans and in the proposal, shall including all materials, labor and equipment, as measured and will be paid for at the contract unit price for Cut and Cap, \_\_\_ inch Watermain. No other payment will be allowed.

Compaction Tests - All soil compaction tests shall be performed by the City with full cooperation and labor and equipment assistance from the contractor. The Contractor shall be allowed one re-test. All costs for any additional testing due to failure of the Contractor to meet density requirements shall be borne by the Contractor. These costs shall include all labor and equipment and supervision needed to re-test failed areas.

Field Cutting Pipe - The spigot ends of pipe which have been field cut, shall be ground to a smooth surface and painted with two coats of asphaltum metal protective paint.

WATER SERVICES - As used herein, water services shall be considered to include all pipe, corporation cocks, curb stops, curb boxes and all necessary appurtenances to transport water from the watermain to private property. For larger services requiring valves instead of corporation cocks, specifications will be covered in the Special Provisions.

Scope - The Contractor shall, unless otherwise noted, furnish all materials, equipment, tools and labor necessary to accomplish the installation of all water services at the locations shown on the plans or as located by the Engineer. The Contractor shall conduct his work as to minimize traffic interruptions.

Corporation Cocks - The unit price of this item shall include all labor and materials for tapping the existing watermain and installing the corporation cocks, utilizing a Mueller # P25008, Ford # FB1000-X pack joint or approved equal. On services 1 ¼" to 2" a ductile cast iron saddle Ford # FS101 or approved equal shall be used and will be included with the corporation cock payment. Payment will be for installation complete.

Water Service Line - The unit price of this item shall include all labor and materials for laying copper service pipe, type K, at the location specified and of the size indicated on the plans; in the proposal, or as specified by the Engineer. The service shall be connected to the corporation cock and "goose-necked" for expansion purposes, with a minimum of 5 ½ feet of bury below the proposed grade. Payment for water service shall be by the lineal foot as measured horizontally from the centerline of the main to the centerline of the curb stop or meter pit and from the centerline of the curb stop to the connection point of the existing water service, from the connection point of the meter pit to the connection point of the existing water service shall be lineal foot of pipe used, the connection fitting shall be included in the new water service line and shall have continuity between the old and new service.

Curb Stop and Box - The unit price of this item shall include all labor and materials to install a working and useable curb stop and box., utilizing a Mueller # P25155, Ford # B44-444M pack joint or approved equal with 2 inch Minneapolis thread, bushed for 1 ½ inches. Connections shall be copper pipe to copper pipe. Payment will be for installation complete.

Meter Pit - The unit price of this item shall include all labor and materials to install a working and useable meter pit, utilizing a Ford # W3-T Cover with Locking lid, Ford # AV94-324W pack joint Angle Yoke Key Valve, Ford # L94-24D pack joint Yoke Ell, Ford # EC-23 Expansion Connection, Ford # Y503 Series Yoke Bar, Sono-Loc 20 inch diameter 36 inch high Meter Box, or approved equal on all items, the City of Muskegon will provide the meter. The Contractor will install to finish grade at locations specified on the plans; in the proposal, or as specified by the Engineer. Payment will be for installation complete.

**HYDROSTATIC TESTS - Connecting to Existing Water Mains Prior to Pressure Testing Will Not Be Allowed.** Preliminary testing of mains shall be done by the Contractor to ascertain if there are any major leaks. Final pressure tests shall be made in presence of the Engineer, who shall receive 24 hours notice prior to testing. The Contractor shall pressure test each 5000 foot section of water main as it is constructed or as directed by the Engineer. Pressure testing of each 5000 foot section shall be made in increments of 1500 feet or less.

Before applying the specified test pressure, all air shall be expelled from the pipe. If hydrants for blow off are not available at high points, the Contractor shall make the necessary taps to release the air and insert plugs after the test has been completed, or install corporation cocks and leave them in place after testing. The Engineer shall notify the Municipal Water Department prior to making connections to any existing watermains, filling of mains with water and flushing of any watermains. Reasonable use of water from City mains for purposes of testing will be available at no cost to the Contractor.

The Contractor shall furnish proper appliances and facilities for testing and draining the main without injury to the work and surrounding territory. The Contractor shall test by filling the main with clean water under minimum hydrostatic pressure of 150 lbs per square inch. In no case shall the leakage in any stretch of pipe being tested exceed the following amounts in a 2-hour period:

All pipe installed on the project shall be tested in accordance with the requirements of ANSI / AWWA C600-10.

$$L = \frac{SD \sqrt{P}}{148,000}$$

Where;

L = testing allowance (makeup water), in gallons per hour

S = Length of Pipe tested, in feet

D = Nominal Diameter of Pipe Tested, in Inches

P = Average Test Pressure during the hydrostatic test, in pounds per square inch (gauge)

For 6" pipe – 1.00 gallons per 1000 lineal feet per two hour period  
For 8" pipe – 1.32 gallons per 1000 lineal feet per two hour period  
For 10" pipe – 1.66 gallons per 1000 lineal feet per two hour period  
For 12" pipe – 1.98 gallons per 1000 lineal feet per two hour period  
For 14" pipe – 2.32 gallons per 1000 lineal feet per two hour period  
For 16" pipe – 2.64 gallons per 1000 lineal feet per two hour period  
For 18" pipe – 2.98 gallons per 1000 lineal feet per two hour period  
For 20" pipe – 3.32 gallons per 1000 lineal feet per two hour period  
For 24" pipe – 3.98 gallons per 1000 lineal feet per two hour period  
For 30" pipe – 4.96 gallons per 1000 lineal feet per two hour period  
For 36" pipe – 5.96 gallons per 1000 lineal feet per two hour period

In the event that a leak is detected and located, the Contractor shall review the method of repair with the engineer for concurrence before proceeding with the repair. After repairs are made the main will be retested. The Contractor shall notify the Engineer of his intent to retest at least 24 hours in advance. However, the Contractor shall not begin the retest until all attempts have been made to correct all defects, and approval for retesting has been given by the Engineer.

The City shall be responsible for all inspection costs for the first two hydrostatic tests of any section. If a section requires a third hydrostatic retest, the Contractor may be held liable for such inspection costs incurred by the City of Muskegon personnel.

**ELECTRICAL CONDUCTIVITY** - All ductile iron pipe and fittings furnished and installed under this contract shall be provided with electrical conductivity connections. Electrical conductivity connections shall be brass wedges, copper cable bond, copper strap bond, conductive push-on gaskets and megalug retainer glands as specified. After installation of the mains, backfilling and the hydrostatic pressure tests are completed, the system (pipe line and hydrants) shall be tested for electrical continuity and current capacity. It is imperative that all lines and appurtenances be filled with water prior to conductivity testing. The line will be tested in sections between hydrants and or stand pipes. The hydrants and hydrant valves will be opened to bleed off any air in the lead. The hydrant will then be closed and the hydrant valve left open. Adjacent hydrants or stand pipes will serve as test section termini. The Contractor will provide electric current of 100 to 150 amperes for the test. Direct current of 150 amperes, shall be passed through the pipe line for a period of five minutes. Current flow through the pipe shall be measured continuously on a suitable ammeter and shall remain steady without interruption or

excessive fluctuation throughout the five minute test. Insufficient current or intermittent current or arcing, indicated by large fluctuations of the ammeter needle, shall be evidence of defective electrical contact in the pipe line. The cause shall be isolated and corrected. Thereafter, the section in which the defective test occurred shall be retested as a unit and shall meet the test requirements to the satisfaction of the Engineer. All electrical connections shall be capable of carrying 60 amps. Any pipe cut and repaired with couplings shall have electrical connections. In addition to the above work the Contractor at the time the joint is made shall test each joint for contact effectiveness. The payment for electrical conductivity shall be included in the cost of the new watermain. No other payment shall be made.

Tapping Existing Water Mains 4 Inch and Larger - All work relative to tapping existing watermains shall be under the supervision of the Water Department Superintendent. The Contractor, after proper notice and coordination, shall have at the site adequate personnel, equipment and materials to properly install the tapping sleeve and valve. The existing watermain shall be exposed and the pipe cleaned to accept the tapping sleeve. The sleeve shall then be installed and valve attached. The Contractor shall then perform the pressure test at (150#) for five (5) minutes in the presence of the project Inspector. After testing, personnel from the Water Department will make the tap using City equipment. The Contractor will assist as necessary. No charges shall be made to the Contractor by the City for such described work.

Permeation - Every effort will be made to identify any contaminated areas before any work proceeds, but should the contractor encounter any contaminated area, work shall cease and the specialized gaskets for use in contaminated areas will be used. Refer to AWWA C600 section 4.1 (**Permeation**), for instructions about how to proceed in contaminated work areas.

## CLEANING AND DISINFECTING

Flushing - After the hydrostatic tests have been satisfactorily completed, the pipe lines shall be cleaned and flushed by introducing water from the city water- mains into the completed line and the water allowed to flow from the far end of the section and flushed until it runs clear. Before the main is chlorinated, it shall be flushed with potable water to remove air pockets and particulates. The flushing velocity in the main shall not be less than 3.0 ft/sec in accordance with AWWA C651-14, Section 4.4.2. Each section tested shall be flushed separately. All disinfecting shall be done in accordance with AWWA Standard C651-14.

Disinfecting - Disinfect the pipe lines with chlorine. The preferable point of application of the chlorinating agent is at the beginning of the new pipe line, or any valve section of it, and through the stand pipe or a corporation cock inserted in the horizontal axis of the newly laid pipe. Water from existing watermains should be controlled to flow very slowly into the newly laid pipe during application of chlorine. Partially open the end-most hydrant or valve on the section of pipe line under treatment to permit the flow of water through the pipe line. Continue treatment until the water flowing from the far end of the main contains a chlorine residual of at least 25 parts per million. Stop the flow of water and chlorine by closing appropriate openings. (See Sections 13.09.05 and 13.09.06 for information on chlorine products and methods of application) A field test shall be done for determining that the proper amount of chlorine residual is in the new pipe line, the test shall be done by the Contractor with testing equipment approved by the Engineer.

Disinfecting Duration - Permit the treated water to remain in the pipe line for at least 24 hours, after which, there should be a free chlorine residual of not less than 10 ppm. A field test shall be done for determining that the proper amount of chlorine residual is in the new pipe line, the test shall be done by the contractor with testing equipment approved by the Engineer. The main shall then be thoroughly flushed until all of the heavily chlorinated water is removed to the point of a residual chlorine content not to exceed 2 ppm, or a residual acceptable to the City of Muskegon Department of Public Works. The Contractor will test the water to see that this has been accomplished. (See AWWA C651-14, Section 4.9)

Sampling - The Engineer will schedule with the water filtration plant for sample pick-ups. (First sample pick-ups shall be done Monday through Thursday, no first sampling will be done Friday through Sunday) An initial set of samples will be taken after 16 hours without any water use. Then collect, using the sampling site procedures outlined and without flushing the main, two sets of samples a minimum of 15 min apart while the sampling taps are left running. Both sets of samples must pass for the main to be approved for release. A 48 hour test is required for each sample. If the results of the samples are unsafe, a repeat of the chlorine treatment and sampling is necessary. A set of samples includes all samples collected along the length of the pipeline. For new mains, sets of samples shall be collected every 1200 feet of the new watermain, plus one set from the end of the line, and at least one from each branch greater than one pipe length. Sampling should never be collected from hoses or fire hydrants. Sampling shall be from stand pipes or a corporation tap with a copper pipe extension. Sampling points shall have a valve and a copper gooseneck assembly. Cost of collecting samples and laboratory analysis shall be paid for by the City of Muskegon, up to a maximum of two tests per section. Any additional testing will be at the Contractors expense. All materials, labor, equipment and tools for conducting the cleaning and disinfecting treatment shall be furnished by the Contractor without cost to the City. All sampling shall be done in accordance with AWWA C651-14, section 5.1, Bacteriological Tests.

Chlorine Products - Chlorine products for disinfecting watermain are available in several forms. Refer to AWWA C651-14, Sec. 4.1 for the forms of chlorine which may be used in the watermain disinfection operation, and the proper methods of handling and feeding different types of chlorine into the watermain. The most convenient forms are as follows:

- A. Liquid Chlorine (gas) conforming to ANSI/AWWA B301 contains 100 percent available chlorine and is packaged in steel containers usually of 100-lb, 150-lb, or 1-ton net chlorine weight. The pressure of the chlorine in the cylinder varies with the outside temperature and will usually be found to vary between 40 and 140 lbs. per square inch.
- B. Calcium hypochlorite conforming to ANSI/AWWA B300 is available in granular form or in 5-g tablets and must contain approximately 65 percent chlorine by weight. The material should be stored in a cool, dry, and dark place to minimize its deterioration.

**CAUTION:** Tablets dissolve in approximately 7 hr and must be given adequate contact time. Do not use calcium hypochlorite intended for swimming pool disinfection, as this material has been sequestered and is extremely difficult to eliminate from the pipe after the desired contact time has been achieved.

**Calcium hypochlorite Application** - A solution of water and approved chlorine should be applied to watermains by means of solution feed chlorinating device with a power operated booster pump. High test calcium hypochlorite must be prepared as a water mixture for introduction into the watermains. The powder should be made into a paste and then thinned to about a 1% chlorine solution (10,000 parts per million). The preparation of a 1% chlorine solution requires the following proportions of powder to water.

<u>Product</u>	<u>Amount of Compound</u>	<u>Gals. Of Water</u>
High test calcium Hypochlorite 65% to 70%	1 lb	8.0

Prepare the 1% chlorine solution in a container and permit solids to settle. Apply the clear supernatant solution to the main by pumping through a power operated chemical feeder. The following table indicates the amount of chlorine required for each one hundred feet of various pipes.

<u>Size of Pipe</u>	<u>Vol. gals. In 100 ft. pipe</u>	<u>Amounts of chlorine or chlorine solution per 100 ft of main for 25 p.p.m.</u>	
		<b>Chlorine 100%</b>	<b>1% Chlorine Water Solution</b>
4"	65.3	.013 lbs.	.16 gal.
6"	146.9	.030 lbs.	.36 gal.
8"	261.1	.054 lbs.	.65 gal.
10"	408.0	.085 lbs.	1.02gal.
12"	587.5	.120 lbs.	1.44 gal.
16"	1044.5	.217 lbs.	2.60 gal.

#### METHOD OF MEASUREMENT AND PAYMENT

Watermain Pipe - shall be measured by lineal feet of pipe in place, including the lengths of fittings and valves, as measured along the center line of the pipe. At hydrant leads, watermain pipe shall be measured by lineal foot from the centerline of the main to the centerline of the hydrant including fittings and valves.

Valves and Fittings – shall be paid for as “each”, and the unit price shall include the cost of all materials and accessories, testing installation, restraining devices and labor necessary for proper operation.

Restraining Devices - thrust blocks, retainer glands, tie rods, etc., shall be incidental to the piping costs and the cost of which shall be included in the unit price for watermains and / or valves, fittings, etc.

Hydrants - shall be paid for as “each”, and shall include all materials, accessories and labor to install this item in the proper manner. Hydrant valves shall be paid for separately as an “each” item but the cost of all the restraining devices is incidental and should be included in the cost of the pipe in place.

## CITY OF MUSKEGON

### PROGRESS CLAUSE

ENG.:EJM

1 of 2

05-08-19

**PROGRESS CLAUSE:** Submit a complete, detailed and signed Michigan Department of Transportation (MDOT) Form 1130, Progress Schedule, to the Engineer within 7 calendar days after award. The Engineer for this project is as follows:

Ryan C. McEnhill, PE  
Eng., Inc.  
16930 Robbins Road, Suite 105  
Grand Haven, MI 49417  
616-743-7070  
mcenhillr@engdot.com

The progress schedule submittal must include, as a minimum, the controlling work items for the completion of the project and the planned dates that the work items will be the controlling operations. It must also include a detailed sequence of construction. All contract dates including open to traffic, project completion, interim completion and any other controlling dates in the contract must be included in the progress schedule.

In no case may any work be commenced prior to receipt of formal notice of award by the City of Muskegon.

The project must be completely open to traffic on or before **October 31, 2020**.

The project completion date for this project is **October 11, 2020**. This date is to accommodate an establishment period for turf establishment. All contract work except turf establishment must be completed in its entirety by **October 31, 2020**. Turf establishment must be placed by **October 11, 2020**. The contractor has until **October 31, 2020** to meet the specifications associated with turf establishment. Failure to complete all contract work, except turf establishment, by **October 11, 2020** will result in the Contractor being assessed liquidated damages in accordance with subsection 108.10.C.1 of the MDOT 2012 Standard Specifications for Construction.

The contractor may begin construction at any time after receipt of formal Notice of Award and the preconstruction meeting. Once construction commences, progress may not stop until the project is complete.

Once construction has commenced, excluding the work required to construct the surcharge roadway pay item, the work shall continue uninterrupted until completion and be completed within **18 weeks** and which takes precedence over the completion dates outlined above.

Failure by the Contractor to meet interim, final and/or any open to traffic and stage completion dates will result in the assessment of liquidated damages in accordance with subsections 108.10.C.1 of the MDOT 2012 Standard Specifications for Construction. Liquidated damages will be assessed separately, simultaneously, and concurrently for failure to meet interim, final, and any stage completion dates. Liquidated damages will continue to be assessed for each calendar day that the work associated with the interim, final and/or any stage completion dates



remains incomplete, even if these days extend into or beyond the normal seasonal suspension period as specified in the MDOT 2012 Standard Specifications for Construction, unless approved otherwise by the Engineer.

Unless specific pay items are provided in the contract, any extra costs incurred by the Contractor due to cold weather protection, winter grading, sufficient manpower and equipment necessary to maintain the schedule and/or meet the final completion date, and any overtime will not be paid for separately, but will be included in payment of other contract items.

Unless specific pay items are provided in the contract, any extra costs incurred by the Contractor due to cold weather protection, winter grading, sufficient manpower and equipment necessary to maintain the schedule and/or meet the final completion date, and any overtime will not be paid for separately, but will be included in payment of other contract items.

After award and prior to the start of work, the Contractor must attend a preconstruction meeting with the Engineer. The Engineer will determine the day, time and place for the preconstruction meeting. The meeting will be conducted after project award and may be rescheduled if there are delays in the award of the project.

The named subcontractor(s) for Designated and/or Specialty Items, as shown in the proposal, is recommended to be at the preconstruction meeting if such items materially affect the work schedule.

Per the Maintaining Traffic Special Provision, the Contractor shall work between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday. No work is allowed outside these time periods.

The Contractor may be required to meet with City representatives for a post- construction review meeting, as directed by the Engineer. The Engineer will schedule the meeting.

Failure on the part of the Contractor to carry out the provisions of this Progress Clause may be considered sufficient cause to prevent bidding future projects.

CITY OF MUSKEGON  
NOTICE TO BIDDERS  
**UTILITY COORDINATION**

ENG.:EJM

1 of 2

03-28-19

For protection of underground utilities and in conformance with Public Act 53, the Contractor shall call Miss Dig (1-800-482-7171) 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. Miss Dig member utilities 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.

**PUBLIC UTILITIES:** The following Utilities have facilities located within the Right-of-Way:

DTE Energy 2359 Olthoff Drive Muskegon, Michigan 49444	Gas	Mr. Vince Duca 231-777-4034
Frontier Communications 860 Terrace Street Muskegon, Michigan 49444	Telephone	Mr. David Flermoen 231-727-1319
Consumers Energy 700 E. Sternberg Road Norton Shores, Michigan 49444	Electric	Ms. Michele Andree 231-332-2621
City of Muskegon Muskegon, MI 49442 1350 E. Keating Avenue Muskegon, MI 49442	Sewer & Water	Mr. Dave Baker 231-724-4184 Mr. Leo Evans 231-724-6920
City of Muskegon Muskegon, MI 49442 1350 E. Keating Avenue Muskegon, MI 49442	Streets & Storm Sewer	Mr. Dave Baker 231-724-4184 Mr. Leo Evans 231-724-6920
Comcast 3500 Patterson Ave SE Grand Rapids, Michigan 49512	Cable TV	Mr. Jim Stitzel 810-217-8773
Muskegon County Drain Commissioner Central Services Building 141 E. Apple Avenue Muskegon, Michigan 49442	County Drains	Ms. Brenda Moore 231-724-6219
ACD.net 1800 Grand River Ave. Lansing, MI 48906	Fiber Optic	Mr. Glenn Deutscher 517-999-3267

The owners of existing service facilities that are within grading or structure limits will move them to locations designated by the Engineer or will remove them entirely from the Right-of-Way. Owners of the 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 Contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in Section 104.08 of the 2012 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 2012 MDOT Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon Section 109.05.E of the 2012 MDOT Standard Specifications for Construction.

## CITY OF MUSKEGON

### SPECIAL PROVISION FOR ABANDON UTILITIES

ENG.:EJM

1 of 2

03-28-19

**a. Description.** This work shall consist of abandoning existing underground utilities (sewers, underdrains, sewer structures, regulators, water main, etc.) as shown on the plans or as directed by the Engineer. Underground utilities shall be abandoned by filling with flowable fill or removing.

Any existing abandoned structures found during construction shall be removed at no additional cost to the Owner.

**b. Materials.** The materials shall meet the requirements specified in Division 9 of the Standard Specifications or as otherwise indicated:

Granular Material, Class III	902 of Standard Specifications
Flowable Fill	Special Provision

**c. Construction.**

1. Abandon Existing Sewer and Water Main. No existing sewer or water main shall be abandoned until all service leads are verified to be disconnected. All pipes to be abandoned shall be capped at each end and filled from one end until the fill material comes out the other end. When only one end of the pipe is accessible, a grout tube shall be installed and filling shall start at the closed end of the pipe and proceed to the accessible end. All open ends of the pipe to be filled are to be plugged with a concrete bulkhead. Such plugging shall be included in the pay item for "Abandon Existing x-inch Sewer" or "Abandon Existing x-inch Water Main."

2. Abandon Existing Structure. No structure shall be abandoned until all sewers and water mains connecting with the structure have been removed or properly abandoned. Existing structures to be totally abandoned shall have the top 4' of the chimney removed or collapsed into the structure. The frame and cover shall be salvaged and returned to the Owner. The structure shall be backfilled in accordance to the Standard Specification, Subsection 204.03.C. The work of backfilling shall be included in pay item "Dr Structure, Abandon". Surface restoration shall be provided according to the plans. Regulators to be modified shall be constructed as indicated on the plans.

**d. Measurement and Payment.** Measurement for Dr Structure, Abandon, shall be each as counted in the field. Measurement for Abandon Existing x-inch Sewer and Abandon Existing x-inch Water Main shall be feet of pipe filled as measured in the field. Payment for Dr Structure, Abandon, and Abandon Existing x-inch Sewer shall be for all labor, equipment and materials necessary to complete the work.

Measurement and payment for Regulator, Abandon, shall be on the unit price basis per each regulator abandoned as counted in the field. Payment shall include the work to abandon the regulator as indicated on the plans, and all labor, materials and equipment necessary to complete the work.

The Contractor may remove the utility in lieu of abandoning it at his option. However, the Contractor will be paid at the unit price bid for the item "Abandoning".

The following pay item numbers will apply to this section as listed in the contract documents unit price pay item list:

<b>Contract Item (Pay Item)</b>	<b>Pay Unit</b>
Dr Structure, Abandon.....	Ea
Regulator, Abandon.....	Ea
Abandon Existing 16 inch Water Main .....	Foot
Abandon Existing 4 inch Sewer .....	Foot
Abandon Existing 6 inch Sewer .....	Foot
Abandon Existing 8 inch Sewer .....	Foot
Abandon Existing 10 inch Sewer .....	Foot
Abandon Existing 12 inch Sewer .....	Foot
Abandon Existing 15 inch Sewer .....	Foot
Abandon Existing 18 inch Sewer .....	Foot
Abandon Existing 20 inch Sewer .....	Foot
Abandon Existing 21 inch Sewer .....	Foot
Abandon Existing 24 inch Sewer .....	Foot
Abandon Existing 27 inch Sewer .....	Foot
Abandon Existing 30 inch Sewer .....	Foot
Abandon Existing 36 inch Sewer .....	Foot
Abandon Existing 42 inch Sewer .....	Foot
Abandon Existing 48 inch Sewer .....	Foot
Abandon Existing 54 inch Sewer .....	Foot
Abandon Existing 16 inch Sewer .....	Foot
Abandon Existing 90 inch Sewer .....	Foot

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**AUDIO VISUAL FILMING**

ENG:EJM

1 of 2

03-28-19

**a. Description.** Provide a film record of physical, structural and aesthetic conditions of the area described in this special provision as it exists prior to the beginning of any construction activities. The film must be professional quality, providing a clear and accurate visual record of existing condition.

Complete filming, under the supervision of the Engineer, before any construction activity is started. Furnish the completed video to the Engineer one week prior to placement of any materials or equipment in the construction area. Any portion of the video determined by the Engineer to be unacceptable for the documentation of existing conditions must be re-filmed prior to the start of any construction activity. All costs associated with the need to re-film will be borne by the Contractor.

**b. Audio-Video Production.** Provide the name of the videotaping services company to the Engineer a minimum of 5 work days prior to the start of taping.

Using color DVD quality video and equipment which allows audio and video information to be recorded. Do not splice or edit the video. Speed and electronics of the video equipment and DVD must conform to video taping industry standards. Film in the general direction of vehicular travel and do not exceed 45 feet per minute (approximately 0.5 miles per hour). Control pan and zoom rates to ensure playback clarity of the subject matter being filmed.

Use audio and video cues to identify location, relative to project limits and landmarks, at intervals of not more than 100 feet along the filming route. Provide audio commentary as necessary during filming to describe streets, buildings, landmarks and other details which will enhance the documentation of existing conditions.

Conduct filming during a time of good visibility and not during periods of precipitation, or when snow, leaves, or other natural debris obstruct the area being filmed.

Use video equipment with date/time stamp and digital annotation capabilities. The final video recording must display the date (month, day and year) and the time (hours, minutes, and seconds). This transparent information is to appear on the upper left hand corner of the frame.

The project station numbers must appear in the lower half of the frame. This stationing must use MDOT standard engineering symbols (i.e., 3+50). If there is no project stationing in an area being filmed, assign assumed stationing to each street or other discrete area being filmed. Start the assumed stationing at 0+00 and increase from west to east or from south to north. Include periodic, transparent alpha/numeric information below the station numbers consisting of the name of the project, name of area shown, direction of travel, viewing direction, etc.

**c. Area to be Filmed.** Film all existing driveways, sidewalks, fences, trees, shrubbery and other structures and landscaping located up to 50 feet outside of the proposed right-of-way line shown on the plans and within the limits of construction. The limits of construction consist of

Yuba Street from Eastern Avenue to Spring Street, Spring Street from Western Avenue to Yuba Street, Pine Street from Clay Avenue to Western Avenue, Western Avenue from Pine Street to Spring Street, and the alley between Bourdon Street and Addison Street from Fair Avenue to Lakeshore Drive. The video coverage must include the exterior of all buildings within the above described limits.

**d. Measurement and Payment.** The completed work as documented by the DVD(s) or USB hard drive will be paid for at the contract unit price for the following contract item.

**Contract Item (Pay Item)**

**Pay Unit**

Audio Visual Filming .....Lump Sum

Payment for the item **Audio Visual Filming** includes all labor, equipment and materials required to perform the filming and to provide the finished video(s) to the Engineer.

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**BACKFILL, LIGHTWEIGHT, SLAG AGGREGATE**

ENG.:EJM

1 of 2

05-09-19

**a. Description.** This work consists of furnishing, placing and compacting backfill consisting of lightweight iron blast furnace slag aggregate (IBFSA). Place the backfill to the limits shown on the plans and according to requirements contained herein.

**b. Materials.**

1. Iron Blast Furnace Slag Aggregate. Use IBFSA in accordance with subsection 902.02.A of the Standard Specifications for Construction. The IBFSA must not exceed 50 percent loss according to ASTM C131. In addition, the material must meet the gradation shown in Table 902-1 of the Standard Specifications for Construction for 6AA coarse aggregate.

2. Stabilization Geotextile. Material must be Class 1 non-woven stabilization geotextile in accordance with subsection 910.03.D of the Standard Specifications for Construction.

**c. Construction.** Prior to placing the IBFSA, place the stabilization geotextile on the prepared subgrade and excavated slopes to completely encapsulate the IBFSA on all sides from the subgrade, surrounding and overlying materials. Eliminate wrinkles or waves, which develop in the geotextile during placement. Shingle-lap (minimum of 2 feet unless otherwise noted on the plans) or seam all longitudinal and transverse joints in the geotextile. Field or factory seams, sewn or sealed, must meet specified grab tensile strength. Procedures for testing seams are detailed in ASTM D4884. Install seams facing upward to facilitate inspection.

Place and compact the IBFSA according to section 206 of the Standard Specifications for Construction, except as specified herein. Do not place and compact layers less than 6 inches in thickness and not more than 12 inches in thickness. Do not operate equipment directly on the geotextile. Place and spread the first layer of IBFSA on the stabilization geotextile without damaging the geotextile or breaking down the IBFSA utilizing a method approved by the Engineer to achieve a uniform layer of 12 inches. Compaction requirements are waived for the first layer. Compact each successive layer utilizing the appropriate equipment to achieve desired compaction, as approved by the Engineer, without breaking down the lightweight aggregate so as to achieve a uniform stable surface. Density acceptance testing is waived. Excessive compactive effort may result in the crushing of the IBFSA and an undesirable increase in unit weight. The expected in-place compacted rodded unit weight range of the IBFSA is 75 to 80 pounds per cubic foot (pcf). The in-place compacted unit weight of the IBFSA must not exceed 85 pcf.

To avoid crushing, over compaction and contamination of the material, do not drive vehicles or equipment on IBFSA. Remove damaged or contaminated IBFSA and place, trim and compact new IBFSA over previously placed clean undamaged IBFSA as directed by the Engineer. The cost of this removal and replacement will be at no cost to the Department.



Protect the exposed surface from contamination of the IBFSA at the end of each work day.

**d. Testing and Acceptance.** Acceptance of the IBFSA will be based on gradation and unit weight from samples obtained from the project site. Sampling of the aggregate will be according to the *Materials Quality Assurance Procedures Manual*. Make adequate allowance for degradation of the IBFSA so that it will meet the requirements herein after it is compacted in place. The Engineer may sample and test the in place IBFSA at any time. If the IBFSA is found not conforming to these specifications, immediately correct procedures used to place and compact the IBFSA to ensure it meets the specification requirements.

Prior to delivery to the project site, provide written certification from the supplier that the IBFSA has been stockpiled for at least 30 calendar days and meets the acceptance criteria detailed in MTM 129, *Leachate Determination of Iron Blast Furnace Slag used for Lightweight Aggregate Fill*. The leachate determination will be verified by the department prior to placement.

**e. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Backfill, Lightweight, Iron Blast Furnace Slag Aggregate, LM .....	Cubic Yard

**Backfill, Lightweight, Iron Blast Furnace Slag Aggregate, LM** will be measured based on hauling unit dimensions and load count, prior to placement and compaction. Payment for **Backfill, Lightweight, Iron Blast Furnace Slag Aggregate, LM** constitutes full compensation for completing the work as described herein and includes all costs for stockpiling, furnishing, hauling, placing, compacting (including water), and shaping the material at specified locations. Payment for **Backfill, Lightweight, Iron Blast Furnace Slag Aggregate, LM** includes all costs associated with furnishing and placing the stabilization geotextile. No payment will be made for any overlaps, splices or material cut off or wasted.

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**DEWATERING SYSTEM**

ENG.:EJM

1 of 2

03-28-19

**a. Description.** This work consists of all labor, equipment and materials necessary to lower the groundwater table to facilitate the excavation. This work may require the use of pumps or well points, deep wells, or other measures that are utilized to control groundwater. This work also consists of disposal of ground water containing mercury and/or other contaminants. Refer to ground water test results in this proposal,

**b. Well Points and Deep Wells.** Should groundwater control be performed by deep well and/or well point pumping systems, it must be done without damage to property or structures and without interference with the rights of the public, owners of private property, pedestrians, vehicular traffic or the work of other contractors. Any pumping methods used for dewatering and control of groundwater and seepage must have properly designed filters to ensure that adjacent soil will not be pumped with the water, thus creating voids underground and around the face of the excavation or under existing structures. The loss of fines must be limited to no more than 5 parts per million (ppm) by volume in the extracted water. Such filter design must be reviewed and approved by the Engineer before placement.

Commence dewatering operations prior to steel sheet pile driving and excavation. The required groundwater levels must be established and maintained before the steel sheet pile installation begins. Perform the dewatering operations in a proper and predetermined sequence with the excavation operation such that the perimeter, bottom and face of the excavation are stable. Dewatering well diameter, pumping rate and well spacing must provide adequate drawdown of the water level. Wells must be properly located to intercept groundwater that otherwise would enter the excavation and interfere with the work. Install observation wells at key locations for observation of groundwater levels during the excavation. Submit a plan for locations and monitoring frequency of the observation wells to the Engineer a minimum of 7 calendar days in advance of placement of the dewatering system.

Abandon observation wells in accordance with current MDEQ requirements when no longer needed.

Filters or settling devices may be required before discharge to ensure that storm sewers, sanitary sewer systems or surface waters are not adversely impacted by construction debris or increased sediment load.

**c. Storm Sewer, Sanitary Sewer or Surface Water Discharge.** The volume of water discharged to the storm sewer system, sanitary sewer system or as surface water discharge must be monitored by using a totalizing turbine type flow meter. The flow meter must be placed in-line on the dewatering system effluent line, be designed for high flow applications and must have a flow totalizing register that is adequately sealed to eliminate fogging and condensation. The type of meter used must be reviewed and approved by the Engineer before placement.

Written permission from the City of Muskegon is required prior to discharge to the system. Provide

a copy of the written authorization to the Engineer prior to discharging any water to the system.

Secure a NPDES permit from the MDEQ prior to any discharge to a storm sewer or directly to a surface water body.

Monitor and document the volume of flow being discharged to the storm sewer, sanitary sewer or the surface water daily by reading the register on the flow meter. Provide this information to the Engineer daily or as otherwise approved.

**d. Construction.** The groundwater may be lowered up to a depth 3 feet below the bottom of any excavation. The methods and materials required to accomplish this work must be determined by the Contractor, subject to approval by the Engineer before initiation or installation of the dewatering system.

Ground water samples on Spring Street west of Webster Avenue indicate high levels of mercury. All ground water containing mercury must be collected, hauled, and disposed of in accordance with NPDES and Michigan DEQ standards.

The Engineer may order corrective actions to the dewatering system at any time due to deficiencies in the system at no additional cost to the Owner.

Remove dewatering system and all associated appurtenances when no longer needed and restore the area as directed by the Engineer.

**e. Measurement and Payment.** The completed work, as described, will be measured as a lump sum and paid for at the contract price using the following pay item:

Pay Item	Pay Unit
Dewatering System .....	Lump Sum

**Dewatering System** includes all labor, equipment, materials, wells, piping, supplies, power, and fuel necessary for the installation, operation, maintenance, removal and the disposal of all surplus materials as described herein. This pay item includes the cost of disposal of all water pumped from below ground to facilitate underground construction. This pay item also includes the cost of collecting, hauling, and disposing of all contaminated ground water.

All costs associated with obtaining an NPDES permit and any locally required permits are included in this pay item.

The installation, maintenance and removal of observation wells are included in this pay item.

There will be no compensation for idled personnel or equipment due to any system corrections ordered by the Engineer to remedy any deficiencies.

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**DR STRUCTURE COVER, MODIFIED**

ENG.:JMD

1 of 1

05-09-15

**a. Description.** This item shall consist of furnishing and installing new covers, including frames, on new or existing structures according to the contract documents. Place castings on a full mortar bed.

**b. Materials.** For manholes, the castings and covers shall be East Jordan Iron Works 1040 or approved equal with the City of Muskegon standard cover. The covers shall be imprinted with the City of Muskegon logo and cast with "City of Muskegon" and either "Sanitary Sewer" or "Storm Sewer."

**c. Measurement and Payment.** This item shall be measured as Each in accordance with Section 403 of the MDOT 2012 Standard Specifications for Construction.

**Contract (Pay Item)**

**Pay Unit**

Dr Structure Cover, Modified .....Each

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**DRAINAGE STRUCTURE COVER, ADA COMPLIANT**

MET:IJ

1 of 1

APPR:DMG:CAL:02-28-13

**a. Description.** This work consists of furnishing all labor, equipment and materials necessary to install a drainage structure cover that is ADA compliant including the casting and grate as provided on the standard plans and modified for grate opening size.

**b. Materials.** Materials must be in accordance with sections 403 and 908 of the Standard Specifications for Construction and this special provision. The frame and cover must be manufactured by East Jordan Iron Works, Neenah Foundry, or approved equal, and must comply with all dimensioning in the standard plans for drainage structure covers except that the openings must not permit passage of a sphere more than 0.5 inch in diameter. Elongated openings must be placed so that the long dimension is perpendicular to the dominant direction of travel. Surface discontinuities will not exceed 0.5 inch maximum. Vertical discontinuities between 0.25 inch and 0.5 inch maximum must be beveled at 1:2 minimum.

**c. Construction.** Furnish and install the drainage structure cover as indicated on the plans or as directed by the Engineer. All work must comply with section 403 of the Standard Specifications for Construction.

All Type B covers or approved equivalent must have an ADA compliant embossing detail for the respective municipal agency or utility company as described herein, and as approved by the Engineer.

Deliver and unload the drainage structure cover at the job site in good condition. Any cracked or otherwise damaged units will not be accepted nor will any reimbursement be made for delivery or pick-up of damaged units.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Dr Structure Cover, ADA Compliant .....	Each

**Dr Structure Cover, ADA Compliant** includes cast iron frame and cover (grate), and removal and disposal of existing drainage structure cover and all associated materials necessary to complete the work.

# CITY OF MUSKEGON

## SPECIAL PROVISION FOR HELICAL PILES

ENG.:EJM

1 of 10

03-28-19

**a. Description.** This work consists of designing, furnishing, installing, and load testing helical piles and bracket assemblies in accordance with the project plans, industry standard design methodology, the standard specifications, and this special provision. Install each helical pile at the location and to the elevation, minimum length, and load capacities shown on the plans.

The following definitions apply when used herein and on the plans:

**Allowable Pile Capacity.** Ultimate pile capacity divided by a factor of safety as designated on the plans. If the factor of safety is not designated on the plans, then the factor of safety will be 2.0.

**Alignment Load (AL).** A small load applied to a helical pile during testing to keep the testing equipment correctly positioned.

**Brackets.** Cap plate or other termination device that is bolted, slipped over, or welded to the end of a helical pile after completion of installation, to facilitate attachments to structures or embedment in cast-in-place structures.

**Designer.** A Professional Engineer, licensed in the State of Michigan, who is retained by the Contractor and is responsible for the design and working drawings required herein.

**Elastic Movement.** The recoverable movement measured during a helical pile test.

**Extension Section.** Helical pile section(s), which follow the lead section into the ground and extend the helical lead to the appropriate depth. Extension section(s) consist of a central shaft and may have helical bearing plates affixed to the shaft.

**Helical Pile.** Manufactured steel foundation element with one or more helical bearing plates that is rotated into the ground to support structures. The element consists of a lead or starter section, extension section(s), brackets, and a pile cap.

**Installation Torque.** The resistance generated by a helical pile when installed into soil. The installation resistance is a function of the soil type and the size and shape of the various components of the helical pile.

**Lead Section.** The first section of a helical pile to enter the ground, lead sections consist of a central shaft with a tapered end and one or more helical bearing plates affixed to the shaft.

**Manufacturer.** The individual or legal entity that performs part of the work required through a contract agreement with the Contractor. This includes an individual or legal entity that owns the patent, product trademark, product copyright, or product name for the approved helical pile system.

**Minimum Pile Penetration Elevation.** The elevation shown on the plans to or below which the bottom of piles must be installed.

**Shop Drawings.** A submittal consisting of drawings and calculations related to the design, installation, and load testing of the helical pile system by the Contractor.

**Torque Strength Rating.** The maximum torque energy you can apply to the helical pile foundation during installation in soil, i.e., allowable or safe torque.

**Unsupported Length.** Unsupported shaft lengths shall include the length of the shaft in air, water, or in fluid soils.

**Verification Load Test.** A helical pile load test performed to verify the helical pile ultimate capacity based on the construction methods proposed. Verification load tests are performed on non- production piles, prior to installation of production piles.

**b. Materials.** Unless noted otherwise, it is the responsibility of the Contractor to select the appropriate type and design strength of helical plates, shaft connections, shafts, brackets, and the overall helical pile system to support the load capacities and criteria specified on the project plans. Materials used for helical piles must meet the requirements of ICC-ES AC358. In addition, all helical piles must be manufactured to the following criteria.

1. Central Steel Shaft. The central shaft must consist of high strength structural steel tube, pipe, or solid steel bars meeting the requirements of *ASTM A 36*, *A 252 Grade 3*, *A 500 Grade C*, or *A 576 Grade 1045* or *Grade 1530*.

2. Helix Bearing Plate. Bearing plate material must conform to *ASTM A 572 Grade 50* or *A 1018 Grade 55*.

3. Bolts, Nuts, and Washers. Must meet the material and hot-dip galvanizing requirements of subsection 906.07 of the Standard Specifications for Construction.

4. Brackets. Bracket must conform to *ASTM A 36*, *ASTM A 572 Grade 50*, or *ASTM A 958 Grade SC 1045*.

5. Couplings. Couplings, if applicable, must conform to *ASTM A 958*.

6. Corrosion Protection. At minimum, all helical piles and hardware must have corrosion protection consisting of hot-dip galvanization in conformance with *ASTM A 153* and *ASTM A 123*, as applicable.

**c. Construction.** Furnish, design, install and load test the helical piles in accordance with the project plans, this special provision, and the approved shop drawings.

1. Qualifications.

- A. Manufacturer. The manufacturer must be a company specializing in the manufacturing and distribution of these products. Manufacturer's qualifications are to be submitted to the Engineer in accordance with subsection c.2.A of this special provision. The submittal must include:

(1) A product catalog and evidence showing the manufacturer has at least 10 years of experience in the design and manufacture of helical piles.

(2) Current ICC-ES product evaluation report or complete description of product testing and engineering calculations used to assess product capacity.

B. Contractor. The Contractor performing the work described in the contract must be a company specializing in the installation of helical piles. The submittal must include:

(1) Evidence the Contractor has completed training in the proper methods for installation of helical piles and brackets.

(2) Documentation that the Contractor's fulltime onsite supervisor and drillers performing the work have completed at least 10 projects and have 3 years of experience installing similar types of helical piles in similar subsurface conditions to this project. Documentation must, at minimum, include project name, description, dates, number and type of helical piles, project location, and client contact information.

(3) List of installation equipment and detailed description of proposed method of installation.

C. Designer. The design of the helical piles must be done by a licensed design professional specialized in the engineering and design of helical piles. The designer must have the following qualifications:

(1) A Professional Engineer licensed in the State of Michigan.

(2) Documentation indicating the designer has designed at least five projects utilizing helical piles. Documentation must, at minimum, include project name, description, dates, number and type of helical piles, project location, and client contact information.

## 2. Submittals.

A. Qualifications. Submit manufacturer, Contractor, and designer qualifications in accordance to subsections c.1.A, c.1.B, and c.1.C.

Submit to the Engineer three copies of the project reference list and a personnel list at least 30 calendar days before the planned start of helical pile construction. Provide a summary of each individual's experience in the personnel list and be complete enough for the Engineer to determine whether each individual satisfies the required qualifications. The Engineer will approve or reject the Contractor's and manufacturer's qualifications within 15 calendar days after receipt of a complete submission. Additional time required due to incomplete or unacceptable submittals will not be justification for time extension or impact or delay claims. All such costs associated with incomplete or unacceptable submittals are to be borne by the Contractor.

Work is not to be started, nor materials ordered, until the Engineer's written approval of the Contractor's, manufacturer's and designer's experience and personnel qualifications is given. The Engineer may suspend the work if the Contractor uses non-



approved personnel, manufacturer or designer. If work is suspended, the Contractor is fully liable for all resulting

costs, and no adjustment in contract time will accrue due to the suspension.

B. Shop Drawings. Prepare and submit to the Engineer shop drawings for the helical piles intended for use on the project at least 30 calendar days prior to start of installation. The shop drawings must include the following:

(1) Overall plan drawing showing helical pile location, number, and product identification number(s).

(2) Maximum allowable mechanical compression and tensile strength of the helical piles. Include the Torque Strength Rating.

(3) Helical piles respective design capacities from the drawings.

(4) Planned installation depth and cut-off elevation and the number and type of lead and extension sections.

(5) Designer's recommended allowable pile capacity to installation torque ratio and minimum final installation torque(s) for the helical test pile(s).

(6) Product identification numbers and designations for all the brackets and number and size of connection bolts or couplers. Details illustrating helical pile attachment to structure relative to grade beam, column pad, pile cap, etc.

(7) Corrosion protection coating on helical piles and bracket assemblies.

3. Subsurface Data. Review the available soil boring logs from the subsurface investigation(s). Upon request, a copy of the geotechnical data report outlining the subsurface exploration conducted during the design phase will be provided. If during construction, the Contractor determines the actual subsurface conditions differ substantially from those reported on the boring logs; notify the Engineer in writing within 48 hours of such determination.

The data indicated on the available boring logs are not intended as representation or warranties of continuity of such conditions. It is expressly understood that the City will not be responsible for interpretations or conclusions drawn therefrom by the Contractor. Additional soil test borings and other exploratory procedures may be performed by the Contractor at no additional cost to the Department.

4. Installation Equipment. The equipment must be capable of applying adequate down pressure (crowd) and torque simultaneously to ensure normal advancement of the helical piles to the ultimate pile capacities and the minimum pile penetration elevation(s) as shown on the plans. The equipment must be capable of continuous position adjustment to maintain proper alignment and position.

A. Torque Motor. Helical piles are to be installed with high torque, low RPM torque motors, which allow the helical plates to advance with minimal soil disturbance. The torque motor must be hydraulically powered with clockwise and counter-clockwise rotation capability. The torque motor must be adjustable with respect to revolutions per

minute during installation. Percussion drilling equipment is prohibited. The torque motor must have a minimum torque capacity 15 percent greater than the torsional strength rating of the central steel shaft to be installed for the project. The connection between the torque motor and the installation rig must have no more than two pivot hinges oriented 90 degrees from each other.

B. Drive Tool. The connection between the torque motor and helical pile must be in-line, straight, and rigid, and must consist of a hexagonal, square, or round kelly bar adapter and helical shaft socket. To ensure proper fit, the drive tool must be manufactured by the helical pile manufacturer and used in accordance with the manufacturer's installation instructions.

C. Connection Pins. Attach the central shaft of the helical pile to the drive tool by smooth tapered pins matching the number and diameter of the specified shaft connection bolts. Maintain the connection pins in good condition allowing safe operations at all times. Inspect the pins regularly for wear and deformation. Replace pins with identical pins when worn or damaged.

D. Torque Indicator. Ensure the torque indicator is capable of providing continuous installation torque measurement during installation. Ensure the torque indicator is capable of torque measurements of 500 ft-lbs or less. Calibrate torque indicators that are mounted in-line with the installation tooling either on-site or at an appropriately equipped test facility. Re-calibrate indicators that measure torque as a function of hydraulic pressure following any maintenance performed on the torque motor. Re-calibrate torque indicators if, in the opinion of the Engineer, reasonable doubt exists as to the accuracy of the torque measurements. If recalibration is directed by the Engineer in writing and the calibration is off by less than 500 ft-lbs, the recalibration will be paid for as extra work. Otherwise recalibrations will be paid for by the Contractor at no cost to the Department.

E. Installation Procedures. The helical pile installation technique is to be determined by the Contractor such that it is consistent with the geotechnical, logistical, environmental, and load carrying conditions of the project. Position the lead section at the location depicted on the working drawings. Battered helical piles can be positioned perpendicular to the ground to assist in initial advancement into the soil before the required batter angle is established. The equipment must be capable of continuous position adjustment to maintain proper helical pile alignment. Apply constant axial force (crowd) while rotating helical piles into the ground. Apply sufficient crowd to ensure the helical pile advances into the ground a distance equal to at least 80 percent of the blade pitch per revolution during normal advancement.

F. Advance the helical pile sections into the soil in a smooth, continuous manner at a rate of rotation between 5 RPM's and 40 RPM's. Adjust the rate of rotation and magnitude of down pressure for different soil conditions and depths.

G. Provide extension sections to obtain the required minimum overall length and installation torque as shown on the shop drawings. Use coupling bolt(s) and nuts torqued in accordance to the manufacturer's guidelines to connect sections together.

H. Do not exceed the manufacturer's Torque Strength Rating of the helical pile during installation.

I. The Contractor must adjust the elevation of the top end of the shaft to the elevation shown on the shop drawings or as required. This adjustment may consist of cutting off the top of the shaft and drilling new holes to facilitate installation of brackets to the orientation shown on the shop drawings. Alternatively, installation may continue until the final elevation and orientation of the pre-drilled bolt holes are in alignment. Do not reverse the direction of torque and back-out the helical pile to obtain the final elevation.

J. Install brackets in accordance with helical pile manufacturer's details or as shown on the shop drawings.

K. Ensure all helical pile components, including the shaft and bracket, are isolated from making a direct electrical contact with any concrete reinforcing bars or other non-galvanized metal objects since these contacts may alter corrosion rates.

L. Obstructions. Terminate the installation and remove the pile if the helical pile encounters refusal or is deflected by a subsurface obstruction. Remove the obstruction if feasible, and reinstall the helical pile. Backfill and compact the resulting excavation before reinstalling the pile. Install the helical pile at an adjacent location, subject to review and approval by the Engineer, if the obstruction can't be removed. Removal of such obstructions will be paid using the pay item Obstruction Removal, Unexpected.

5. Helical Pile Testing. Perform verification testing of helical piles according to *ASTM D 1143*, except as modified herein. Perform the testing under the direction of a Professional Engineer licensed in the State of Michigan. Determine the site specific K factor based on load test results to correlate torque to allowable pile capacity. Summarize the test data in a report to be sealed by the Professional Engineer. Submit the report to the Engineer within 24 hours of each load test. Notify the Engineer in writing 3 working days prior to any load test. Do not perform load tests without a representative from the Department's Geotechnical Services Section being on site to witness the load test.

Do not exceed 80 percent of the following helical pile structural elements during load testing: steel yield in tension, steel yield in compression, and steel buckling in compression. Costs associated with increasing the strength of the verification test pile structural elements above the strength required for production piles will be borne by the Contractor.

A. Testing Equipment and Data Recording. Testing equipment includes, but is not limited to: dial gauges, dial gauge supports, jack and pressure gauges, electronic load cell, reaction piles, and a reaction frame. The load cell is required only for the creep test portion of the verification test. Submit a written description of the load test setup and jack, pressure gauge and load cell calibration reports according to subsection c.2 herein. Design the testing reaction frame to be sufficiently rigid and of adequate dimensions to prevent excessive deformation of the testing equipment. Align the jack, bearing plates stressing anchorage such that unloading and repositioning of the equipment will not be required during the test. Apply the test load with a hydraulic jack and measure the load with a pressure gauge graduated in no more than 50 psi increments or less. Use a jack and gauge with a pressure range not more than twice the anticipated maximum test pressure. Select a jack with ram travel sufficient to allow the test to be performed without repositioning during the test. Monitor the creep test load hold during verification tests with both the pressure gauge and the electronic load

cell. Use the load cell to accurately maintain a constant load hold during the creep test load hold increment of the verification test. Measure the pile top movement with a dial gauge capable of measuring to 0.001 inch and a travel sufficient to allow the test to be performed without having to reset the gauge. Align the gauge to be parallel to the axis of the helical pile. Support the gauge independent from the jack, pile or reaction frame. Use a minimum of four dial gauges evenly distributed around the test pile. Record the load test data.

B. Verification Load Testing. Perform a pre-production verification load test to verify the design of the helical pile and the construction methods used to install the helical pile meet specifications. Do not use production piles as reaction piles during load tests. Unless otherwise specified on the plans, install one sacrificial verification test pile per structure. Install verification test piles at locations approved by the Engineer. The verification helical pile must be identical to those used in production and installed using the same methods to be used for installing production piles.

Do not locate reaction piles closer than 5 feet to the verification pile. Reaction piles must meet the approval of the Engineer. Perform verification load tests by incrementally loading the helical pile in compression according to Table 1. Depending on performance, the Engineer will determine whether a 10 minute or a 60 minute creep load hold is appropriate. If the pile top movement measured between 1 and 10 minutes exceeds 0.04 inches, maintain an additional 50 minutes of load hold during the creep test. Record pile top movements during each hold period at time intervals of 1, 2, 3, 4, 5, 6, 10, 20, 30, 50, and 60 minutes. Reset dial gauges to zero after the initial alignment load (AL) is applied. The acceptance criteria for helical pile verification load tests are:

(1) Failure of the test pile does not occur before the maximum test load is applied. Failure is defined as the lesser of:

(i) The slope of the load versus deflection curve (at the end of the load increment) exceeds 0.025 inch/kip, or

(ii) Where attempts to further increase the test load simply results in continued pile movement.

(2) Test pile supports the allowable pile capacity with not more than 1.00 inch of total vertical movement at the top of the pile from its position prior to testing.

(3) At the end of the creep test load period, a creep rate not greater than 0.04 inch/log cycle time (1 to 10 minutes) and not greater than 0.08 inch/log cycle time (6 to 60 minutes or the last log cycle if held longer) and linear or decreasing creep rate.

The Engineer will provide written approval or rejection of the helical pile design and construction techniques within 7 working days of the completion of the verification load test.

If site conditions vary across the project limits additional load tests may be necessary as determined by the Engineer.

Verification piles constructed using methods different from the methods submitted for production piles will be rejected and additional verification test pile(s) will be

required at no additional cost to the Department. If the verification pile fails to meet the acceptance criteria, the Engineer may modify the design of the production piles or require the Contractor to make modifications to the construction methods, or both. Modifications may include, but not be limited to, modifying the installation methods, or changing the helical pile materials. Any modification to the construction procedure that necessitates changes to the structure requires the Engineer's review and approval.

Do not install production piles until the verification load test results have been reviewed and accepted by the Engineer. At the completion of verification testing, remove testing equipment and remove test piles and reaction piles or cut off piles to an elevation directed by the Engineer.

**Table 1: Verification Load Test Schedule**

Step	Load (a)(b)	Hold Time, minutes	Step	Load (a)(b)	Hold Time, minutes
1	AL	-	19	AL	1
2	0.10 R <sub>n</sub>	3	20	0.10 R <sub>n</sub>	1
3	0.20 R <sub>n</sub>	3	21	0.20 R <sub>n</sub>	1
4	0.30 R <sub>n</sub>	3	22	0.30 R <sub>n</sub>	1
5	AL	1	23	0.40 R <sub>n</sub>	1
6	0.10 R <sub>n</sub>	1	24	0.50 R <sub>n</sub>	1
7	0.20 R <sub>n</sub>	1	25	0.60 R <sub>n</sub>	1
8	0.30 R <sub>n</sub>	1	26	0.70 R <sub>n</sub>	1
9	0.40 R <sub>n</sub>	3	27	0.80 R <sub>n</sub>	3
10	0.50 R <sub>n</sub>	10 or 60 (creep test)	28	0.90 R <sub>n</sub>	3
11	AL	1	29	1.00 R <sub>n</sub>	10
12	0.10 R <sub>n</sub>	1	30	0.75 R <sub>n</sub>	5
13	0.20 R <sub>n</sub>	1	31	0.50 R <sub>n</sub>	5
14	0.30 R <sub>n</sub>	1	32	0.25 R <sub>n</sub>	5
15	0.40 R <sub>n</sub>	1	33	AL	5
16	0.50 R <sub>n</sub>	1			
17	0.60 R <sub>n</sub>	3			
18	0.70 R <sub>n</sub>	3			
a. R <sub>n</sub> denote nominal resistance (ultimate pile capacity).					
b. AL denotes alignment load. AL is equal to 0.025 R <sub>n</sub> .					

#### 6. Production Helical Piles.

A. Advance production helical piles until all of the following criteria are satisfied:

(1) Allowable pile capacity is verified by achieving the required Installation Torque. The required Installation Torque must be determined from the site specific K factor based on the verification load test results. The required Installation Torque is defined as the average of the last three readings recorded at 1 foot intervals, unless a more stringent specification is noted on the designer's shop drawings. The maximum rotational speed must not exceed 12 RPM when torque is monitored.

(2) Minimum depth as depicted on the plans is obtained.

B. If the manufacturer's Torque Strength Rating of the helical pile is obtained during installation and the minimum pile depth has not been reached, the Contractor

and designer must submit revised shop drawings and design calculations for review and approval by the Engineer.

If the Contractor chooses to reinstall a pile in the same location, the topmost helix of the new lead section of the helical pile must be terminated at least 3 feet beyond the terminating depth of the original helical pile.

C. If the final Installation Torque is not achieved at the estimated length shown on the shop drawings, the Contractor has the following options:

(1) Install the helical pile deeper using additional extension sections until the required Installation Torque is obtained.

(2) Remove the helical pile and install a new one with additional and/or larger diameter helical bearing plates. This option may require an additional pile load test to determine the new K factor, as determined by the Engineer. No additional compensation for any additional pile load tests will be provided for in this option.

(3) Submit other options to the Engineer in writing for review and approval.

(4) Additional materials and work necessary to reach the required helical pile capacity, including engineering analysis and redesign, is to be furnished without cost to the Department and without an extension of the completion dates for the project.

D. The helical pile must be sized to reach the allowable pile capacity and the minimum helical pile penetration elevation. No additional compensation for changes in the helical pile will be allowed unless differing site conditions are determined by the Engineer.

## 7. Construction Tolerances.

A. Horizontal Alignment. Ensure the helical pile actual centerlines are within 2 inches of plan centerlines at the plan elevation for the top of the shaft. Tolerances for bracket assembly placement are  $\pm 1$  inch in both directions perpendicular to the shaft and  $\pm 1/4$  inch in a direction parallel with the shaft, unless otherwise specified.

B. Plumb. Tolerance for departure from the design orientation angles is  $\pm 5$  degrees.

C. Top of Pile Elevation. Ensure helical pile is cut off at the design cut-off elevation.

D. Submit a plan for remedial action to the Engineer for approval, for helical piles not constructed within the required tolerances which are considered unacceptable. The Contractor is responsible for correcting all unacceptable piles to the satisfaction of the Engineer. Materials and work necessary to complete corrections for out-of-tolerance helical piles, including engineering analysis and redesign, must be furnished without cost to the Department and without an extension of the completion dates for the project. Do not begin repair operations until receiving the Engineer's approval of the remedial action plan.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

<b>Pay Item</b>	<b>Pay Unit</b>
Helical Pile Equipment, Furn.....	Lump Sum
Helical Pile .....	Each
Helical Pile, Load Test.....	Each

1. **Helical Pile Equipment, Furn** includes furnishing and removing equipment for constructing and installation of the helical pile.

2. **Helical Pile** includes all labor, operating the equipment, fabrication, designing, shop drawings, and materials to install the helical pile and associated brackets as shown on the plans and in this special provision.

3. **Helical Pile, Load Test** will be measured per each helical pile tested and accepted. Helical Pile, Load Test includes the testing apparatus, data collection and reports, the sacrificial helical piles serving as reaction piles, the sacrificial helical pile on which the verification load test is being performed and obtaining acceptance from the Engineer.

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**MACHINE GRADING, MODIFIED**

ENG.:EJM

1 of 2

05-09-19

**a. Description.** This work shall consist of furnishing all labor, equipment and materials required to construct earth grades to the lines and grades shown on the plans. This work shall be completed in accordance with Section 205 of the Michigan Department of Transportation 2012 Standard Specifications for Construction and as herein modified.

**b. Construction.**

**1. General**

Coordination with Public Utilities – Certain portions of the work may require completion of construction by Public Utilities prior to commencing work under this section. The Contractor shall coordinate the work and schedule with other Public Utilities to result in successful completion by the contract completion date.

**2. Requirements**

General – Machine Grading, Modified shall consist of all work required to construct the earth grade in accordance with Section 205 of the Michigan Department of Transportation 2012 Standard Specifications for Construction and in conformance with the lines and grades indicated on the cross sections shown on the plans or established by the Engineer.

Construction Operations – This work shall consist of sawing full depth at driveways, approach streets, sidewalks and the limits of construction; furnishing, hauling and placing of all required embankment material; roadway excavation, excavation for curb and gutter; topsoil stripping, grading for placement of topsoil, and disposal of all excess material. The Contractor shall move the excavated material longitudinally and transversely where necessary and remove all excess material from the construction area. This work shall also include providing access to all properties for the duration of the project by placing, moving, maintaining, and removing maintenance gravel on the roadways and at driveways. Maintenance gravel on the roadways and at temporary driveways shall be milled tailings or gravel base and the costs included with this pay item.

**c. Measurement and Payment.** The completed work as measured for Machine Grading, Modified will be paid for at the contract unit price for the following contract items (Pay Items):

**Contract Item (Pay Item)**

**Pay Unit**

Machine Grading, Modified.....Station

Machine Grading, Modified will be measured in length by stations along the Yuba Street centerline from Station 3+00 to Station 15+50, and Spring Street from Station 3+00 to Station 16+00, and Western Avenue and Pine Street centerline from Station 1+50 to Station 5+65 and Bourdon Street Alley centerline from Station 1+100 to Station 5+500. The transverse limits will



be the road right-of-way lines and approach limits as shown on the plans. Payment for one station shall include both sides of the roadway.

The following approximate excavation and embankment quantities, as well as the items described above, are included in the pay item Machine Grading, Modified.

1. Excavation – 6475 Cubic Yards (In-Situ)
2. Embankment – 3600 Cubic Yards (CIP)

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**MAINTAINING TRAFFIC**

ENG.:EJM

1 of 3

03-28-19

**a. Description.** The project will consist of 0.53 mile of road reconstruction, including curb and gutter, sidewalk, storm sewer, water main, permanent signing, and pavement markings on Pine Street, Western Avenue, Spring Street and Yuba Street in the City of Muskegon, Muskegon County.

**b. General.** Traffic shall be maintained in accordance with Sections 104.07C, 104.11, 812, and 922 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, including any typicals or supplemental specifications and as specified herein.

The Contractor shall coordinate their operations with other Contractors, City of Muskegon and Michigan Department of Transportation within the CIA to eliminate conflicts in traffic control. No additional payment will be made to the Contractor for the joint use of traffic control items.

The Contractor shall notify the Engineer, City of Muskegon (231-724-6707), Muskegon County Road Commission (231-788-2381), Muskegon County Central Dispatch (231-722-3528), and Local Fire Department(s) (231-724-6792), that service the area a minimum of three full working days prior to the implementation of any detours or road closures.

**c. Construction Influence Area (CIA).** The Construction Influence Area (CIA) shall include Yuba Street from Eastern Avenue to Spring Street, Spring Street from Western Avenue to Yuba Street, Pine Street from Clay Avenue to Western Avenue, Western Avenue from Pine Street to Spring Street, and the alley between Bourdon Street and Addison Street from Fair Avenue to Lakeshore Drive.

The CIA shall also include the rights-of-way of any designated detour routes within the limits of the construction and detour signing.

**d. Traffic Restrictions.** Spring Street shall be closed to traffic between Walton Avenue and Western Avenue. Businesses on East Clay Avenue shall be allowed access at all times. Pine Street shall be closed to traffic between West Clay Avenue and Western Avenue. Western Avenue shall be closed to traffic between Pine Street and Shoreline Drive (Bus-31). Yuba Street shall be closed to traffic between Eastern Avenue and Spring Street. Webster Avenue shall be closed to traffic between Shoreline Drive and Spring Street. The detour shall be Shoreline Drive to Terrace Street, then Terrace Street to Webster Avenue. Fair Street shall be closed to traffic between Bourdon Street and Addison Street.

Reasonable access to intersecting roads/streets and residential/commercial drives shall be maintained at all times. The Contractor may temporarily close alternate drives if a business or residence has multiple drives on the same roadway, except for drives that operate directionally (i.e., one-way drives).

The Contractor shall work between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday. No work is allowed outside these time periods. The Contractor must provide a 24-hour notice for Saturday work. The Contractor shall coordinate work so that any necessary preliminary or closing operations are also done within these time periods.

No work shall be allowed during the Memorial Day or Labor Day weekends or the Fourth of July holiday period. The Memorial Day weekend shall begin on Friday, May 22, 2020 at 3:00 p.m. and continue until Tuesday, May 26, 2020 at the normal starting time. The Fourth of July holiday period shall begin on Thursday, July 2, 2020 at 3:00 p.m. and continue until Monday, July 6, 2020 at the normal starting time. The Labor Day weekend shall begin on Friday, September 4, 2020 at 3:00 p.m. and continue until Tuesday, September 8, 2020 at the normal starting time.

The Contractor shall place maintenance gravel the same workday that the pavement is removed in all locations of the project to maintain access to adjacent properties.

The Contractor shall place aggregate base the same workday that earth is excavated in all locations of the project.

**e. Traffic Control Devices.** All signs, barricades, warning lights, and other traffic control devices shall be in accordance with the 2011 Edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD) and conform to MDOT Special Detail WZD-125-E.

All diamond shaped warning signs shall be 48" x 48." All temporary signs shall be mounted at a minimum seven-foot bottom height. All temporary signs used for detour, except those at Type III Barricades, shall be installed on driven posts.

Temporary signs which are to remain in place for fourteen (14) days or more shall be installed on driven posts as directed by the Engineer. All other temporary signs (excluding detour signs) may be installed on portable supports.

Ground driven sign supports for temporary signs shall be installed in accordance with MDOT Special Detail WZD-100-A.

Advance work zone signing is revised to include R5-18c (Work Zone Begins) signs. Install signs at locations shown in the plans or as directed by the engineer.

For construction signing, layout as shown on MDOT typicals minimum Merging Taper Lengths "L," distances between Traffic Control Devices "D," and length of Longitudinal Buffer Length "B" shall be in accordance with Typical Sign Sequence M0020a.

W20-1 "Road Work Ahead" signs shall be placed on all intersecting roads at a minimum distance shown on the plans, or as directed by the Engineer.

Signs placed at Type III barricades shall be placed above and behind the barricade on their own supports.

A quantity of plastic drums with high intensity sheeting has been established and are to be used adjacent to work areas.

**f. Permanent Pavement Markings.** Final pavement markings shall be installed within 3

days of placement of the top course (weather permitting).

The contractor shall place permanent pavement markings in accordance with Section 811 of the MDOT 2012 Standard Specifications for Construction, the Pavement Marking Plans, and the most current version of the MDOT Pavement Marking Typical Plans PAVE-900-Series.

**g. Measurement and Payment.** The Maintaining Traffic Pay Items will be paid for at the Contract Unit Price in accordance with the MDOT 2012 Standard Specifications for Construction, which shall be payment in full for all labor, material, and equipment needed to accomplish this work.

Payment for temporary signs will be made based on the maximum square feet of dissimilar sign legends in use at any one time during the project.

Payment for barricades, lighted arrows, and plastic drums will be made based on the maximum number in use at any one time during the project.

# MINIMUM MERGING TAPER LENGTH "L" (FEET)

OFFSET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
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

TAPER LENGTH "L" IN FEET

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

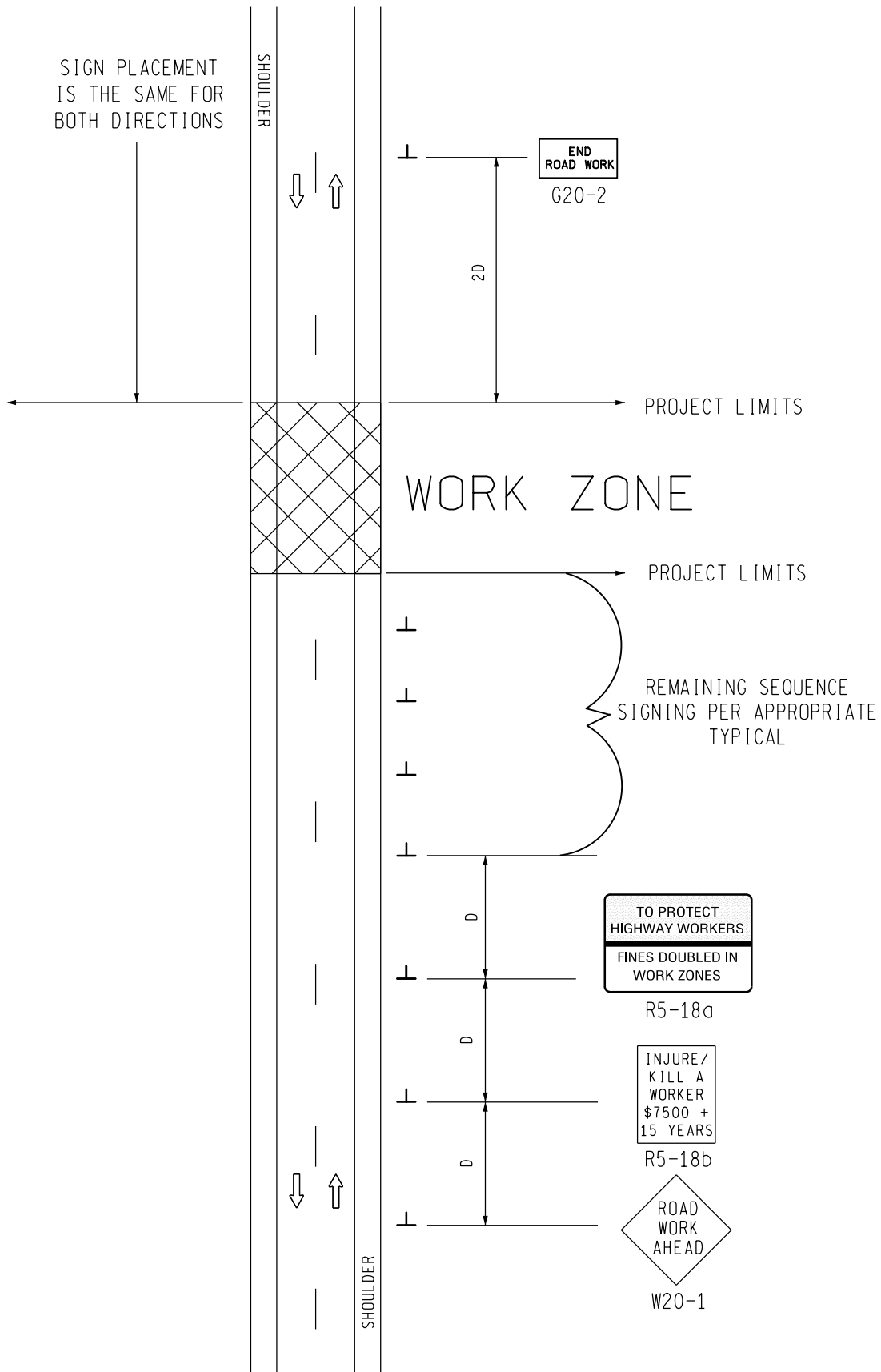
CHECKED BY: BMM

PLAN DATE:

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

REV. 08/21/2006

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 MATERIAL SELECTION TABLE

SIGN SIZE	SIGN MATERIAL TYPE		
	TYPE I	TYPE II	TYPE III
≤ 36" X 36"		X	X
>36" X 36" ≤ 96" TO WIDE		X	
> 96" WIDE TO 144" WIDE	X	X	
> 144" 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.

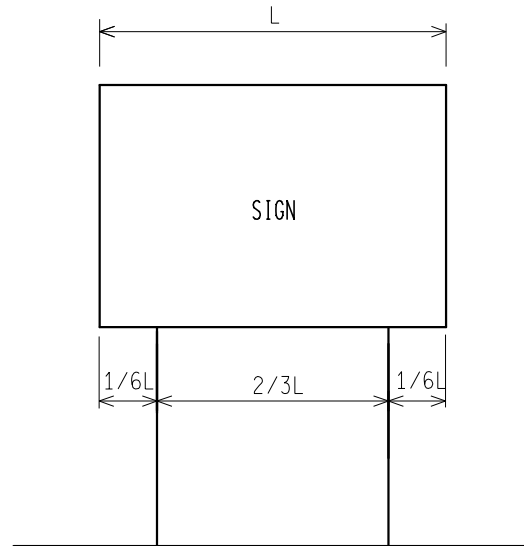
## POST SIZE REQUIREMENTS TABLE

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

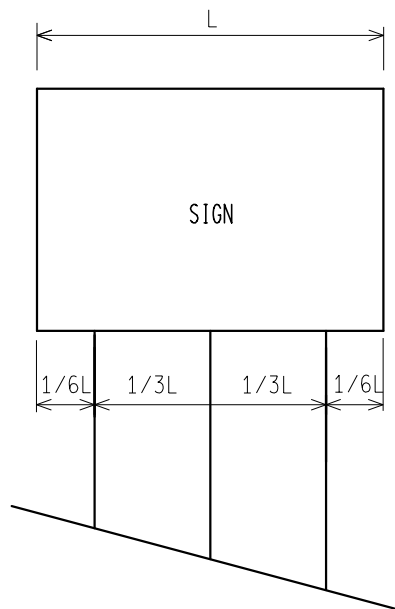
\*SIGNS 4 FEET AND GREATER IN WIDTH REQUIRE 2 POSTS.  
 SIGNS GREATER THAN 8 FEET IN WIDTH REQUIRE 2 OR 3 WOOD  
 POSTS DEPENDING ON AREA OF SIGN.  
 A MAXIMUM OF 2 POSTS WITHIN A 7' PATH IS PERMITTED.

  PREPARED BY DESIGN DIVISION	DEPARTMENT DIRECTOR Kirk T. Steudle	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR			
	APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES		GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS		
	DRAWN BY: CON/ECH CHECKED BY: AUG	APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT	11/2/2017 PLAN DATE	WZD-100-A	SHEET 1 OF 11
			F.H.W.A. APPROVAL		

## 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

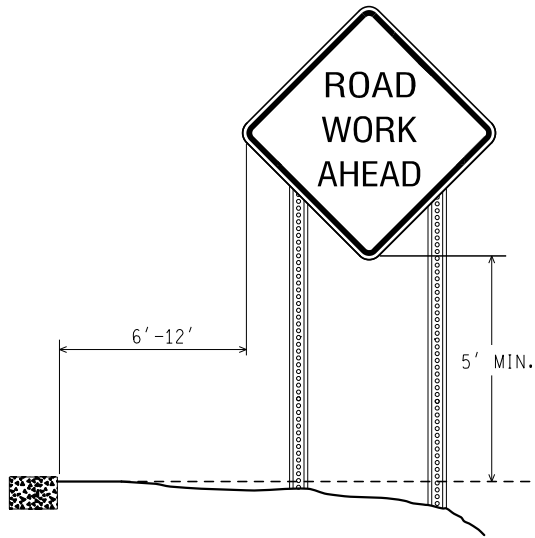
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

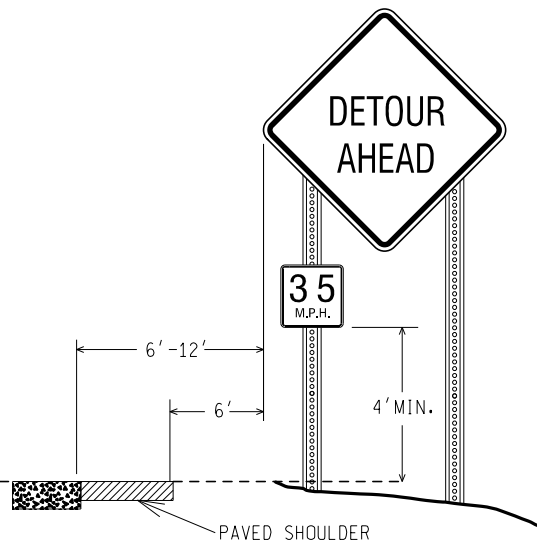
WZD-100-A

SHEET  
2 OF 11

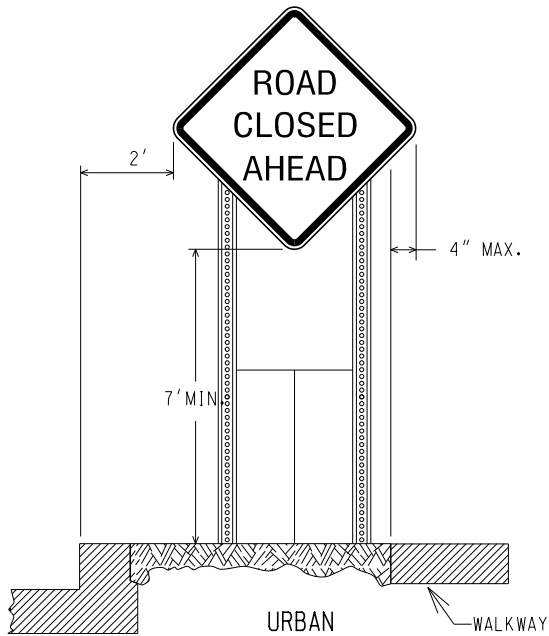
NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



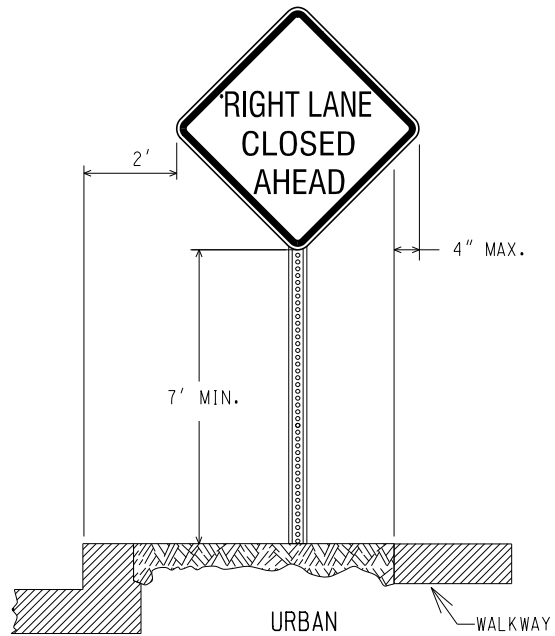
RURAL



RURAL WITH ADVISORY  
SPEED PLATE



(CURBED AREAS OR WHERE  
WALKWAYS ARE PRESENT)



(CURBED AREAS OR WHERE  
WALKWAYS ARE PRESENT)

## BOTTOM HEIGHT AND OFFSET

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN

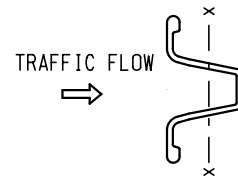
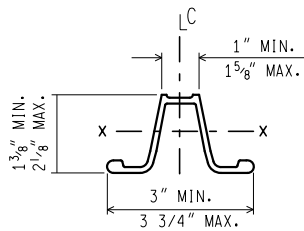
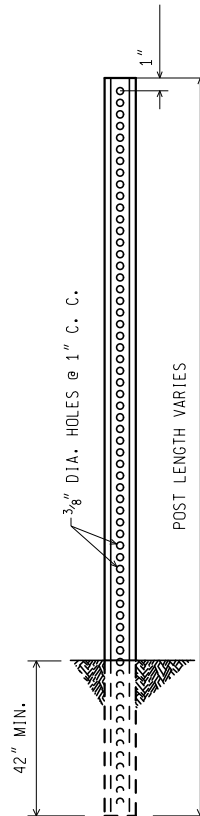
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

WZD-100-A

SHEET  
3 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



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

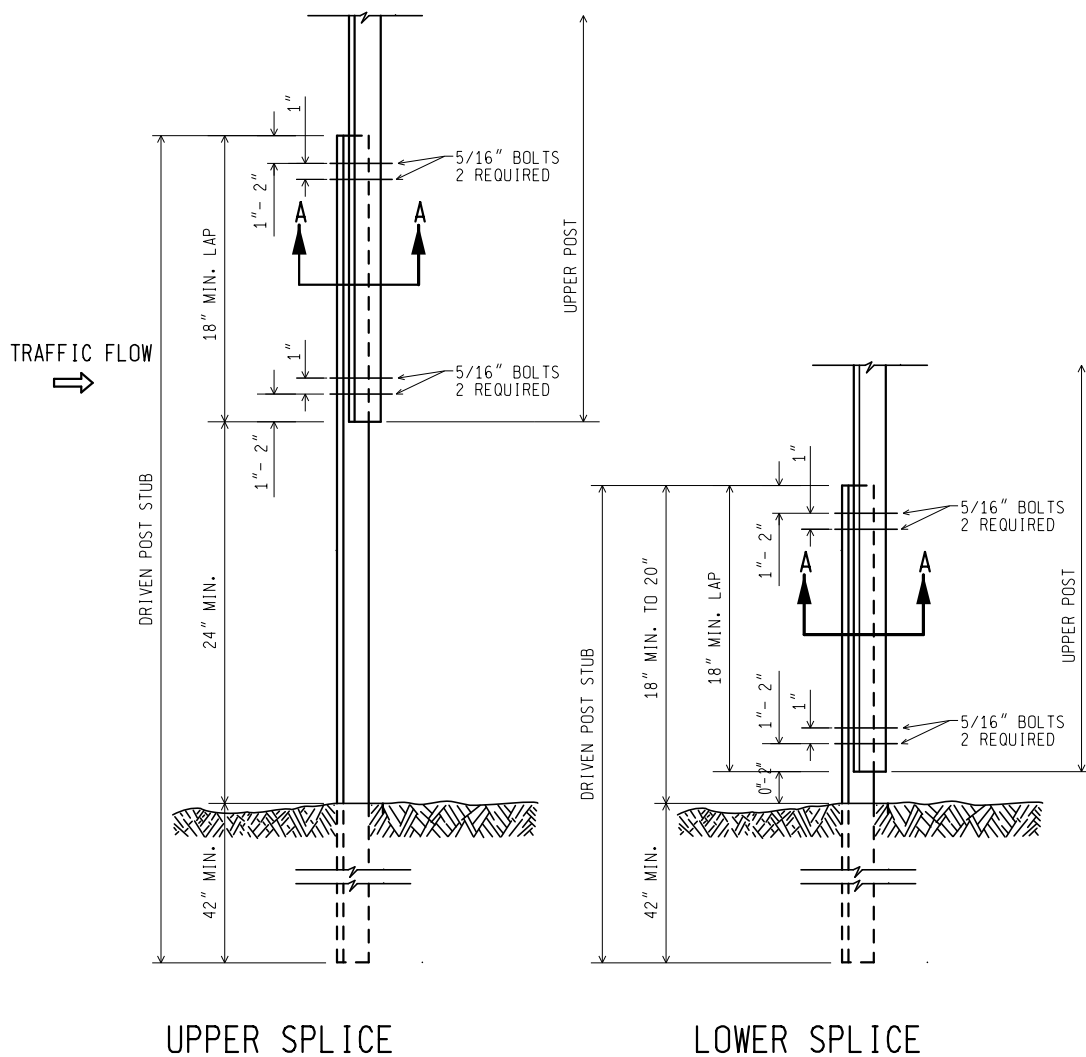
F.H.W.A. APPROVAL

11/2/2017  
 PLAN DATE

WZD-100-A

SHEET  
 4 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



### 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

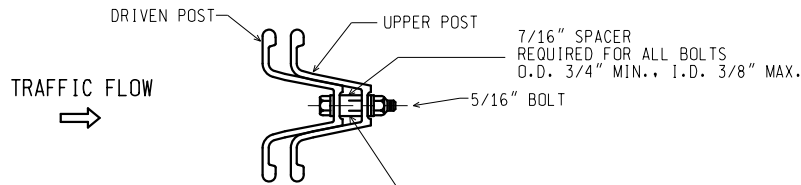
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

WZD-100-A

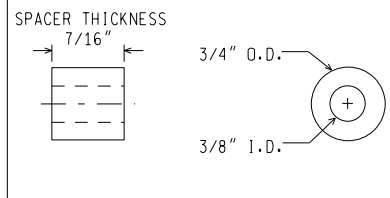
SHEET  
5 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



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

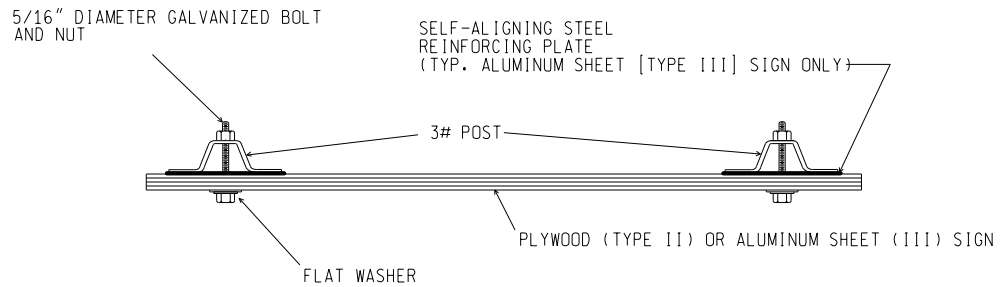
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

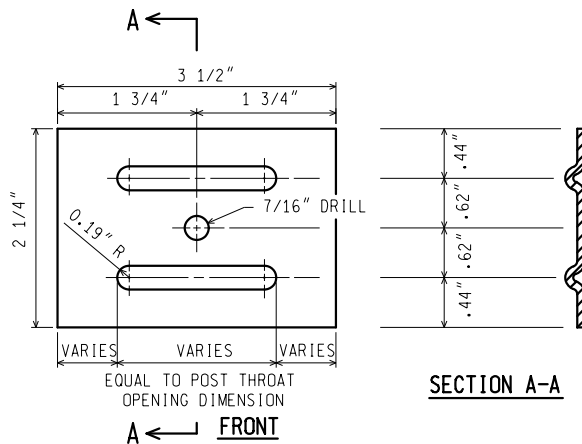
WZD-100-A

SHEET  
6 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



### SIGN TO 3 lb. POST CONNECTION



#### NOTES: (FOR STEEL SIGN REINF' PLATE)

1. MATERIAL: 12 GAUGE CARBON STEEL.
2. TOLERANCE ON ALL DIMENSIONS  $\pm 0.0625$ "
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

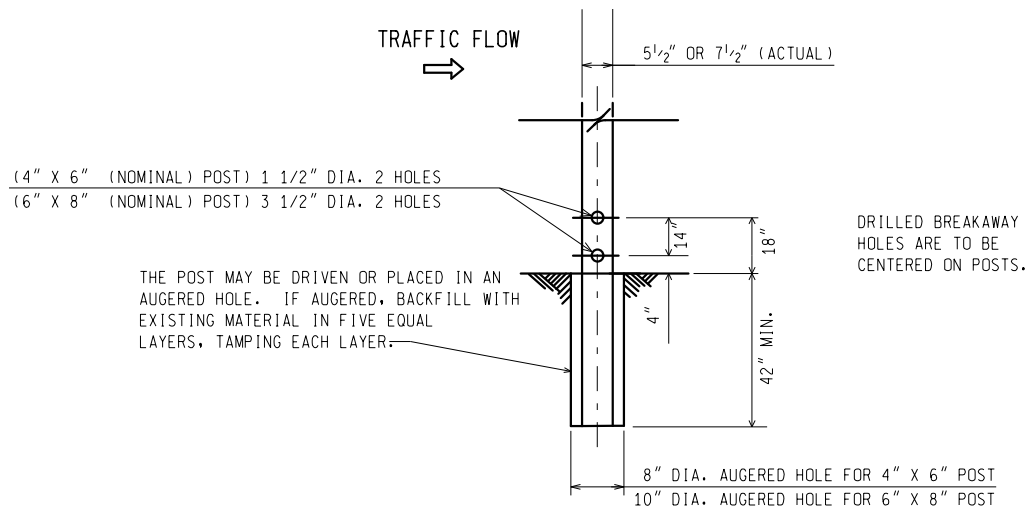
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

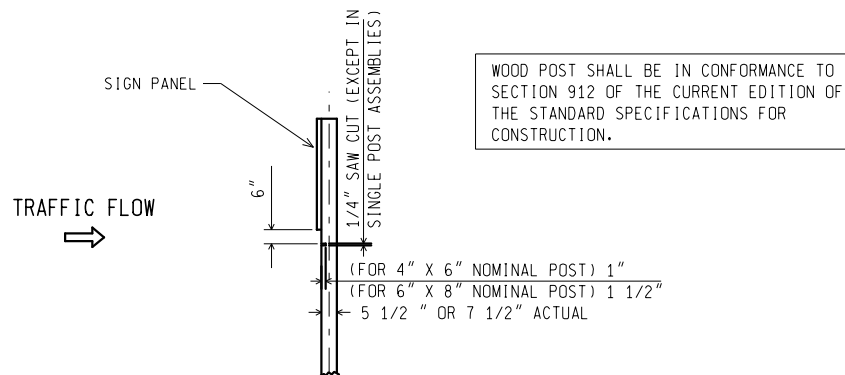
WZD-100-A

SHEET  
7 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



### 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

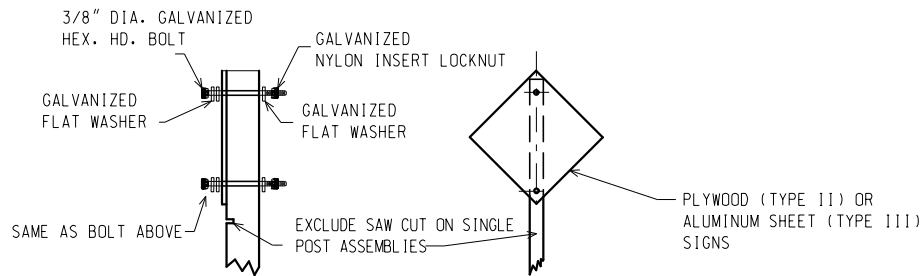
11/2/2017  
PLAN DATE

WZD-100-A

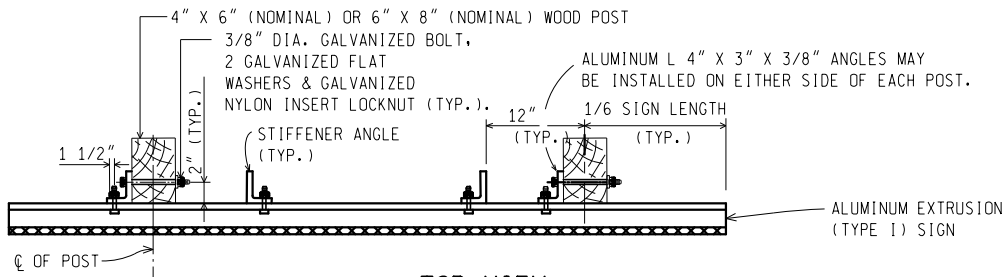
SHEET  
8 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

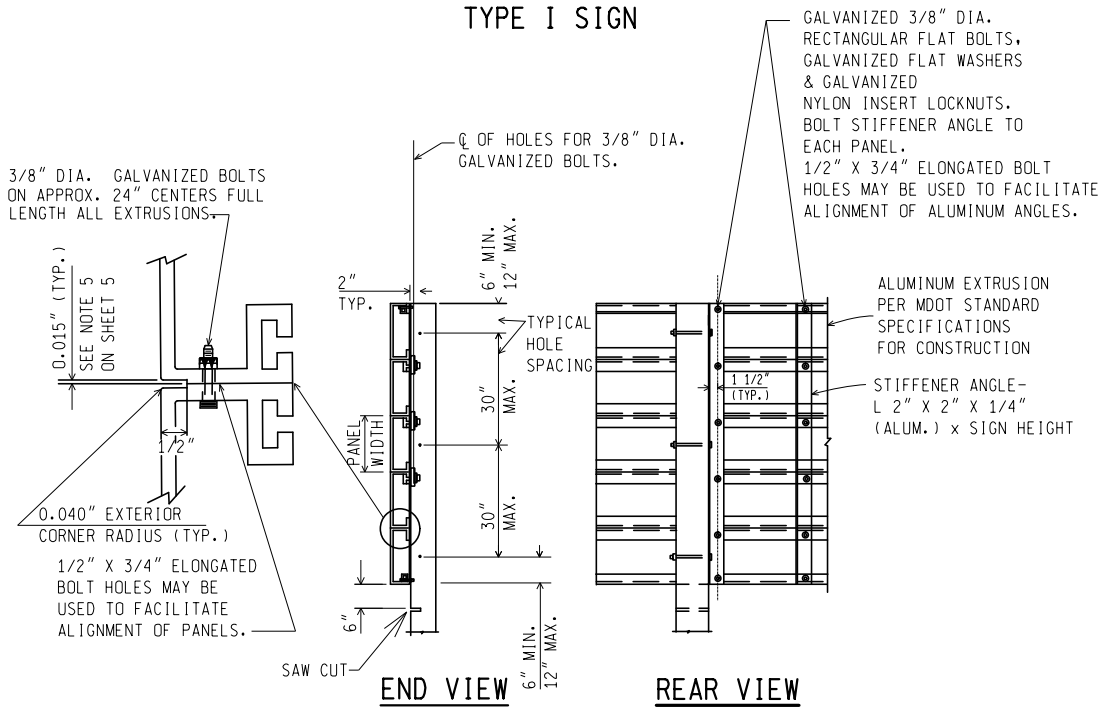




## TYPE II AND TYPE III SIGNS



## 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

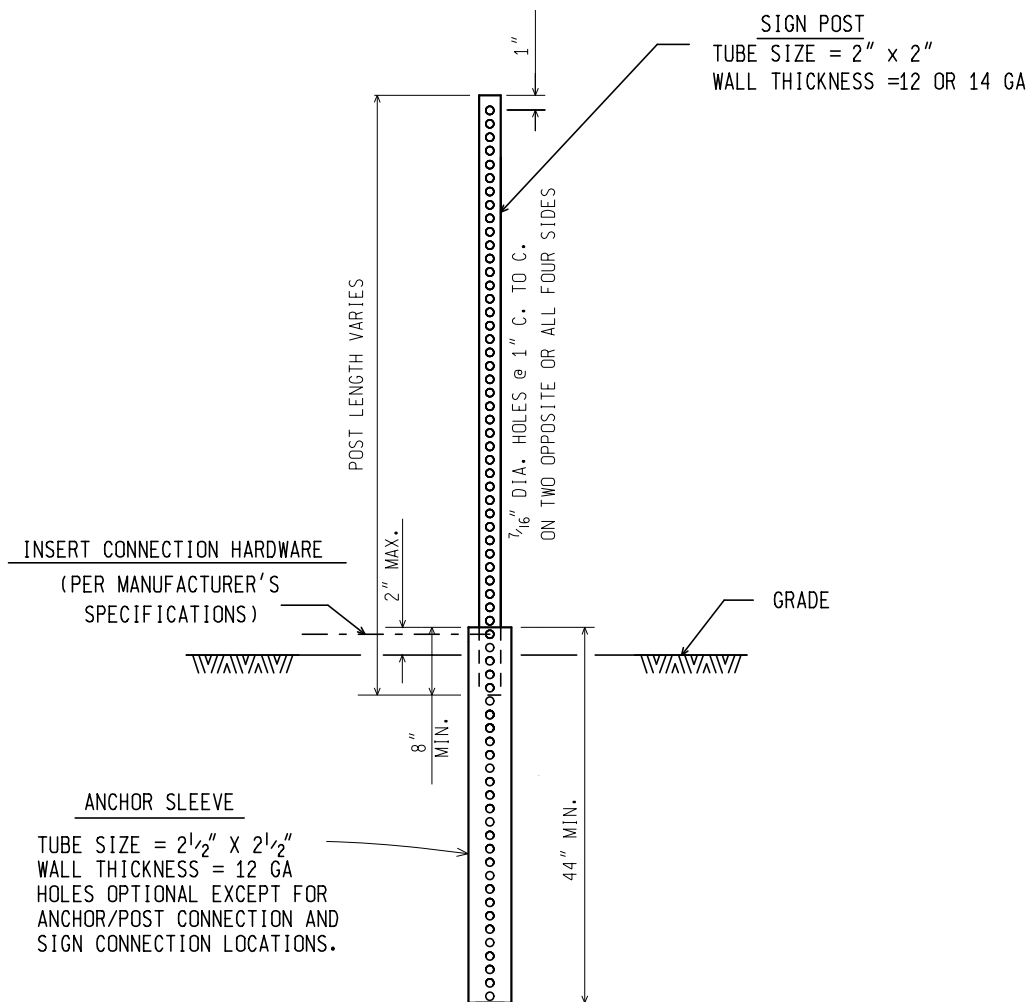
F.H.W.A. APPROVAL

11/2/2017  
PLAN DATE

WZD-100-A

SHEET  
9 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



## SQUARE TUBULAR STEEL POST

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  
10 OF 11

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

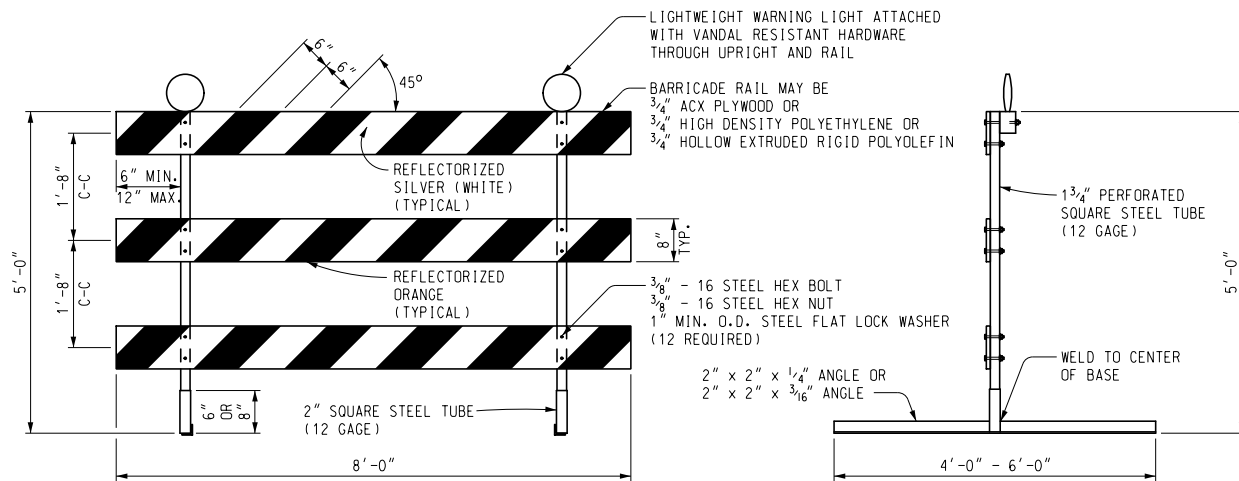
GENERAL NOTES:

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
--	-------------------	------------------------	-----------	-------------------

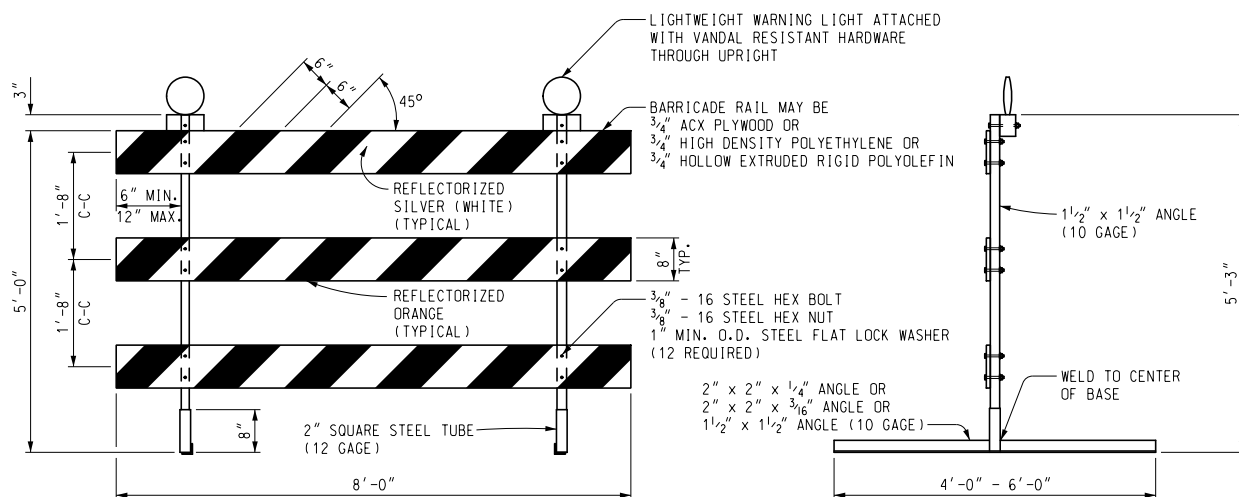
NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



FRONT ELEVATION

SIDE VIEW

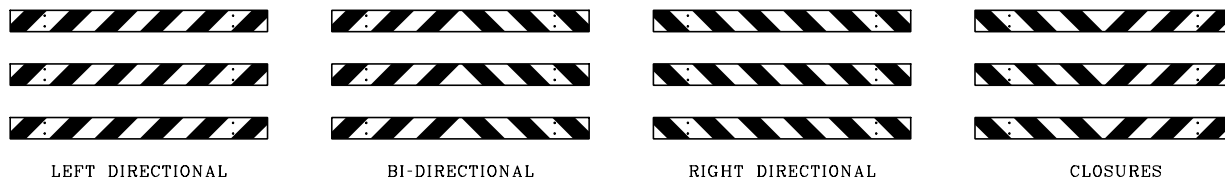
### PERFORATED SQUARE STEEL TUBE OPTION



FRONT ELEVATION

SIDE VIEW

### 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](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

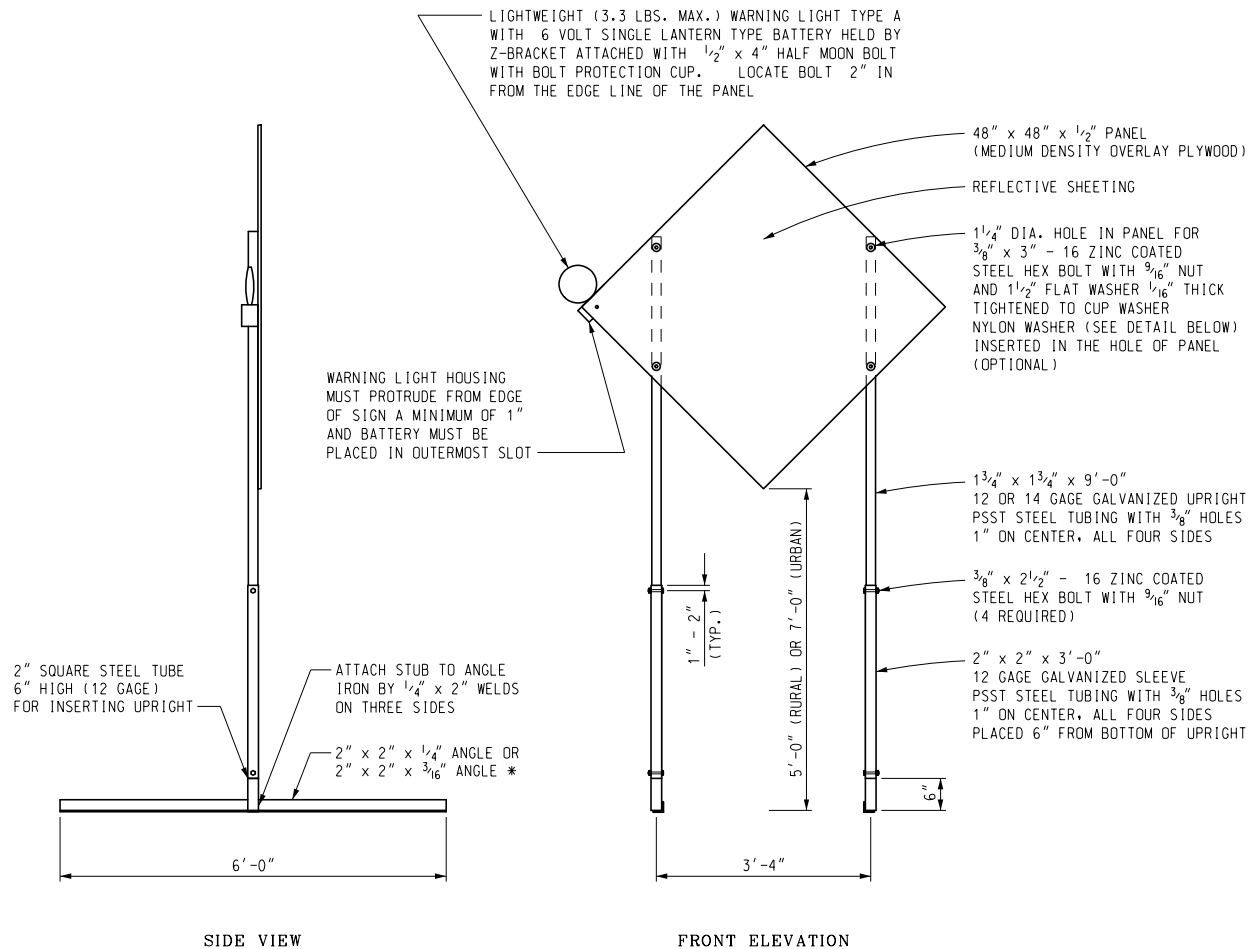
## Temporary Traffic Control Devices

F.H.W.A. APPROVAL

1/18/11  
PLAN DATE

WZD-125-E

SHEET  
1 OF 3

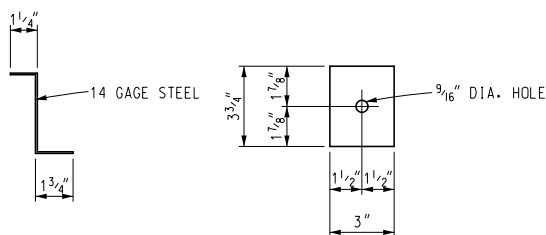


### TEMPORARY SIGN SUPPORT

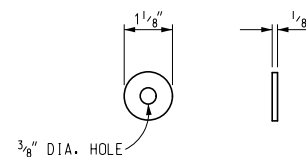
(WARNING LIGHT PLACED ON SIDE CLOSEST TO TRAFFIC)

\* 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](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

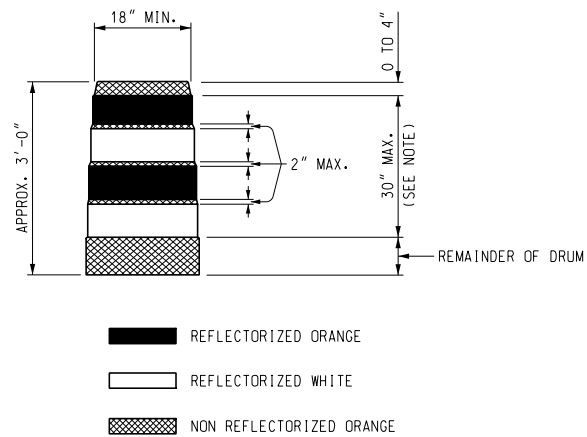
WZD-125-E

SHEET  
2 OF 3

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

- 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

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**NON-HAZARDOUS CONTAMINATED MATERIAL HANDLING AND DISPOSAL**

ENV:JCW

1 of 2

APPR:DMG:DBP:07-06-16

FHWA:APPR:07-13-16

**a. Description.** This work consists of all labor, equipment, and materials necessary to handle, transport, dispose of non-hazardous contaminated material, including all laboratory testing required for the proper disposal of the material and site restoration of temporary storage locations. This special provision must not be employed without authorization by the Engineer. The laboratory testing will be used to solicit landfill approval and is not intended to determine whether or not the material is contaminated. Soil delineated on the plans and classified as non-hazardous contaminated cannot be used elsewhere on the project regardless of the laboratory test results unless otherwise directed by the Engineer.

**b. Materials.** None specified.

**c. Construction.** Complete this work in accordance with sections 204 and 205 of the Standard Specifications for Construction, except as modified herein or as directed by the Engineer.

1. Excavation of Non-hazardous Contaminated Material. Excavate non-hazardous contaminated material as shown on the plans or as directed by the Engineer.

2. Temporary Storage of Non-hazardous Contaminated Material. Place excavated non-hazardous contaminated material which is to be temporarily stockpiled on plastic sheeting or tarps having a minimum thickness of 6 mils or in trucks, roll off boxes, or other containers, such that no liquid may escape from the containment. Cover the non-hazardous contaminated material securely with plastic sheeting of 6 mils thickness or greater at the end of each work day.

Dispose of excavated non-hazardous contaminated material as soon as approval is received from the disposal site. This material cannot be stockpiled for longer than 30 days prior to disposal.

Restore temporary storage locations to the condition prior to conducting the work.

3. Sampling and Analysis of Non-hazardous Contaminated Material. Sample and analyze non-hazardous contaminated material prior to disposal. The analysis required is dictated by the Type II disposal facility to be utilized for disposal. Should the results of the analysis show the material to be hazardous, as defined by the 1994 PA 451, Part 111, of the Natural Resources and Environmental Protection Act, the Engineer must be notified immediately. The material must then be disposed of as directed by the Engineer.

4. Disposal of Non-hazardous Contaminated Material. Dispose of non-hazardous contaminated material at a licensed Type II sanitary landfill. Submit at the preconstruction

meeting the name of the Type II landfill to be used for disposal, the sampling and analysis requirements of that landfill, and verification that use of the proposed landfill will meet the requirements of the county solid waste plan.

Ensure the proposed landfill is acceptable to the Department and approval is obtained from the Engineer prior to commencing disposal operations. Provide a copy of the laboratory analysis to the Engineer as a requirement of approval for disposal. Following disposal and prior to approval for payment provide to the Engineer landfill receipts for all non-hazardous contaminated material disposed of.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price for the following pay item:

Pay Item	Pay Unit
Non Haz Contaminated Material Handling and Disposal, LM.....	Cubic Yard

**Non Haz Contaminated Material Handling and Disposal, LM** will be measured by volume in cubic yards, LM. Provide to the Engineer receipts from the disposal facility for the number of cubic yards disposed of at that facility prior to payment. Payment will include all costs for materials, labor and equipment needed for storage, loading, transportation, testing, restoration of temporary storage locations and disposal of the non-hazardous contaminated material. Disposal costs will include all documentation required by the landfill.

Payment for excavation of non-hazardous contaminated material will be included with the related items of work.

Delays in testing and disposal of non-hazardous contaminated material that are not the fault of the Contractor may be considered valid reasons for extension of time. However, these delays and the resultant extensions of time will not be considered valid reasons for additional payment.

Should the material test hazardous, payment for disposal of hazardous material will be measured and paid for as extra work. Disposal includes hauling by a licensed hazardous waste hauler and disposal at an appropriate licensed disposal facility. Prequalification is waived.



CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**PAVT, REM, MODIFIED**

ENG.:EJM

1 of 1

03-25-19

**a. Description.** This work shall consist of removing existing pavement in accordance with Subsection 204.03 of the Michigan Department of Transportation 2012 Standard Specifications for Construction.

**b. Construction Methods.** The existing pavement(s) shall be removed to sawed joints to allow utility installation and utility repairs as indicated on the plans. Existing utilities shall be protected during removal operations.

**c. Measurement and Payment.** The completed work as measured for Pavg, Rem, Modified will be paid for at the contract unit price for the following contract item (Pay Item):

**Contract Item (Pay Item)**

**Pay Unit**

Pavg, Rem, Modified.....Square Yard

Pavg, Rem, Modified will be measured in place by area in square yards from edge of pavement to edge of pavement excluding curb and gutter. Pavg, Rem, Modified will be paid for as one quantity, regardless of the thickness or material type of the roadway, parking lot and driveway pavement or pavements.

Removing concrete drive approaches and HMA drive approaches will be measured in place by area in square yards and will be paid as Pavg, Rem, Modified.

CITY OF MUSKEGON

SPECIAL PROVISION  
FOR  
**POLLINATOR TREES**

ENG.:EJM

1 of 1

05-09-19

**a. Description.** This work shall consist of installing pollinator trees as indicated on the plans.

**b. Materials.** Materials shall be in accordance with the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, Section 815. The size and species will be as indicated in the Pay Item.

**c. Construction Methods.** The trees shall be installed in accordance with the MDOT 2012 Standard Specifications for Construction, Section 815.

**d. Measurement and Payment.** The completed work, Pollinator Tree, including all materials, labor, and equipment, as measured will be paid for at the Contract Unit Price for the following Contract Item (Pay Item).

**Contract Item (Pay Item)**

**Pay Unit**

Pollinator Tree, Coral Burst Crabapple, 6 foot .....	Each
Pollinator Tree, Kwanzan Cherry, 6 foot .....	Each

**Pollinator Tree, (species), \_\_\_foot** will be measured in place by each. The locations will be as shown on the plans.

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**SANITARY MANHOLE, METER STATION, 84 INCH DIA**

ENG.:EJM

1 of 3

05-09-19

**a. Description.** This work shall consist of all labor, equipment and materials necessary to furnish and install a Sanitary Manhole Meter Station as shown on the plans.

**b. Materials.** The material shall meet the gradation requirements of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, Section 403.

**c. Construction Methods.** The material shall be placed and compacted in accordance with the MDOT 2012 Standard Specifications for Construction, Section 403.

**d. Meter.**

Electromagnetic Flow Meters:

1. A 6" raw sewage wastewater flow meter with remote transmitter shall be located in a meter chamber at STA 1+17 (sheet 6) as shown on the plans. Flow meter shall indicate and totalize effluent flow. Flow indication shall be in gallons per minute with totalized flow units of million gallons. Totalized flow shall also be displayed at the transmitter. Normal operation will be between 150 and 600 gallons per minute with an operation range of 0 to 1,500 gallons per minute.

2. Electromagnetic flow meters supplied under this Contract shall conform to the following Specification unless otherwise noted:

a) Flow meters shall be constructed with the flow transmitter remote mounted.

b) Flow meter size: the meter flow tube size shall conform to the line size as noted in 1-6 above.

c) Flow tube sensor shall be Hallstoy C bullet –nose style electrode.

d) Flow tube housing shall be a stainless steel (1" – 12" diameter) and carbon steel (14" diameter and greater) connection rated for ANSI Class 150 PSI with a neoprene liner to resist corrosives or abrasives. Verify piping drawings to confirm connection type. Flow sensor housing shall have submergence rating to meet IP68 continuous submergence standard and coal tar painted.

e) Output: A programmable flow meter shall convert the flow signal of the primary element into an appropriate linear 4-20mA signal. The output shall be isolated linear and be capable of driving 1-1000 ohms. The electronics shall employ an onboard self-diagnostics package.

f) Relay Contact Scaled Pulse Output: Provide dry-contact scaled pulse output option. Relay contact: Max. 28V, max. 250mA, max. 3w.

g) Unit shall have nonvolatile memory integral with transmitter to save calibration settings and other information necessary to properly operate.

h) Sampling frequency up to 100 hz with inherent levels of noise.

i) Empty pipe detection.

j) Adjustments: The field adjustments required shall be zero and span, and they shall be adjustable without the use of special test equipment. These adjustments shall allow adjustment of signal damping and low flow cutoff to calibrate the equipment.

k) Performance Accuracy: The electronics shall employ all digital electronics to ensure an accuracy of measurement of  $\pm 0.25\%$  of rate 0.67 to 49 feet per second. This accuracy capability will range from  $\pm 0.1\%$  to full scale of flow rate. Adjustable flow range shall meet or exceed 75:1 turndown.

l) Transmitter Enclosure Rating: Unit shall be rated NEMA 4X.

m) Grounding: Provide compatible grounding rings and connections to properly ground the flow tube per manufacturer's specifications.

n) Two line integral illuminated digital flow display capable of displaying flow rate and totalized flow simultaneously. Meter shall be capable of bi-directional flow with contact outputs as forward or reverse indications. The remote mounted transmitter shall be supplied with 50 feet of cable or greater. Only one conduit run is required to connect the meter and transmitter together.

o) Meter shall operate on a 120VAC (60 hz) power source nominally.

p) Total meter construction shall comply with ISO 9000 Standards and be FM approved for Class I Division II area. A computer printout of actual hydraulic calibration traceable to NIST Standards shall be provided.

q) Transmitter shall be interchangeable without effect of meter accuracy or the need for recalibration for all meter sizes.

r) Manufacturers: ABB MAG-X Model or Engineer pre-approved equal. Provide a two year warranty as standard.

#### Float Switches:

1. Provide hermetically sealed, normal open, rated 5 amperes at 120-volt mercury switch liquid level sensors, potted in a solid polyurethane float that is leak proof and shockproof. Cable length shall be as required for application.

2. Design based on Flygt ENM-10. Equal performance by approved equal.

#### Installation:

1. Install the control and instrumentation in accordance with Drawings, shop drawings, and manufacturer's recommendations.

2. Low power DC control signal wires shall be shielded and installed in a separate steel raceway. No AC power or control wires are allowed in the same raceway. The shielded

control wires shall be sized to be compatible with the distances involved and the equipment selected.

3. AC control wires shall be in separate conduit and sized to keep voltage drop within acceptable limits.

4. All wiring terminating in control panel or other devices shall be properly identified with one piece wrap on sleeve type tags or labels with machine lettering.

5. Before any circuits are energized, all internal and external electrical and mechanical clearances shall be checked to assure that all installed equipment will function safely and properly.

**e. Measurement and Payment.** The completed work, Sanitary Manhole, Meter Station, 84 inch Dia including all materials, labor, and equipment, as measured will be paid for at the Contract Unit Price for the following Contract Item (Pay Item).

**Contract Item (Pay Item)**

**Pay Unit**

Sanitary Manhole, Meter Station, 84 inch Dia ..... Each

**Sanitary Manhole, Meter Station, 84 inch Dia** will be measured in place by each. Payment shall include precast concrete structure, all necessary piping and fittings, meter, sump pump, electrical back up, ladder, and all materials, labor and equipment necessary to make corrections to 2 adjacent manholes as shown on the plans and detail.

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**SANITARY SEWER, DROP CONNECTION**

ENG.:EJM

1 OF 1

05-09-19

**a. Description.** This work shall consist of constructing drop connections for those sanitary manholes indicated on the plans.

**b. Materials.** All materials must meet the requirements of the City of Muskegon Specifications for Division 2 - Materials and Division 12 - Sewers.

**c. Construction.** The contractor shall construct each drop connection as indicated in the detail and grades on the plans. Once the drop connection pipe has been installed and connected to the sewer and manhole, the drop connection shall be encased in concrete.

**d. Measurement and Payment.** The completed work as measured for Sanitary Sewer, Drop Connection will be paid for at contract unit prices for the following contract item (pay item):

**Contract Item (Pay Item)**

**Pay Unit**

Sanitary Sewer, Drop Connection.....Each

**Sanitary Sewer, Drop Connection** will be measured and paid for at the contract unit price per each, which price shall be payment in full for all labor, material and equipment needed to accomplish this work. Sanitary manholes will be paid separately.

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**SANITARY SEWER, FUSIBLE PVC, 30 INCH, BORE AND JACK**

ENG.:EJM

1 OF 2

03-28-19

**a. Description.** This work shall consist of installing a 30" fusible PVC sanitary sewer and 42" steel casing pipe by bore and jack operations.

**b. Materials.** The material shall meet the requirements of the City of Muskegon Standard Construction Specifications, Division 12 Sewers.

**c. Construction Methods.**

1. Boring and Jacking

a) Construct and maintain jacking/boring pits as required. Adequately clear site required for pits as needed to perform the work. Size pits for boring machine, frames, and reaction blocks, minimum 2 sections of pipe and with sufficient room for working. Provide steel safety ladder.

b) Locate pits such that no damage occurs to trees, poles (not specified for removal) or structures in the immediate area.

c) Construct pits with sheeting and bracing as required for proper support in accordance with O.S.H.A. Standards and as needed to sufficiently support reaction blocks.

d) Place crushed rock or approved bedding to sufficiently support equipment and protect pit floor.

e) A pushing or jacking frame shall be built and furnished to fit or match the end of the pipe to be jacked so that the pressure of the jacks will be evenly distributed over the end of the pipe.

f) The hydraulic jacks shall have sufficient power to apply a smooth and even pressure to move the pipe in place. Hammering or ramming of the pipe will not be allowed.

g) The pipe shall be jacked upgrade where possible.

h) The excavation shall be done within the inside of the pipe and shall not exceed 12" ahead of the pipe being jacked in place.

i) After each pipe section is in place the pipe shall be checked for correct grade and line. Pipe not meeting the correct grade and line shall be rejected and replaced.

j) Excavation at the top and sides may be approximately 1" greater than the outside periphery of the pipe.

k) The bottom of the excavation shall be accurately cut to line and grade.

l) Adjoining sections of pipe sleeve shall be attached with a continuous weld. Connecting steel pipe to concrete shall be completed with a poured in place concrete collar with reinforcement.

**d. Measurement and Payment.** The completed work, Sanitary Sewer, Fusible PVC, 30 inch, Bore and Jack including all materials, labor, and equipment, as measured will be paid for at the Contract Unit Price for the following Contract Item (Pay Item).

**Contract Item (Pay Item)**

**Pay Unit**

Sanitary Sewer, Fusible PVC, 30 inch, Bore and Jack.....Foot

Measurement and Payment for **Sanitary Sewer, Fusible PVC, 30 inch, Bore and Jack** shall be on the basis of sanitary sewer bored and jacked. Payment shall include boring and jacking of 30" fusible PVC pipe and 42" steel casing pipe, all materials, labor and equipment to install bore and jack machine and all materials, labor and equipment necessary to make connections to sanitary manholes. The boring and jacking takes place under an MDOT right of way. All boring and jacking must comply with the MDOT permit attached.



CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**SURCHARGE ROADWAY**

ENG.:EJM

1 of 1

05-09-19

**a. Description.** This work shall consist of all labor, equipment and materials necessary to furnish, install and remove 4 feet of fill surcharge to the limits shown on the plans, for a minimum duration of 8 weeks.

**b. Materials.** The materials shall meet the requirements of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, Section 301.

**c. Construction Methods.** The material shall be placed in accordance with the MDOT 2012 Standard Specifications for Construction, Section 302.03.

**d. Measurement and Payment.** The completed work, Surcharge Roadway including all materials, labor, and equipment, as measured will be paid for at the Contract Unit Price for the following Contract Item (Pay Item).

**Contract Item (Pay Item)**

**Pay Unit**

Surcharge Roadway .....Lump Sum

**Surcharge Roadway** will be measured in place by the lump sum. The limits of **Surcharge Roadway** are shown on the plans. The surcharge shall have a uniform depth of 4 feet from existing grade. The surcharge must remain in place for a minimum of 8 weeks. Grading for temporary access road for Clay Avenue is included in the **Surcharge Roadway** pay item. Installation, maintenance, and removal of the surcharge is also included in the **Surcharge Roadway** pay item. **Maintenance Gravel** will be paid separately.

CITY OF MUSKEGON  
SPECIAL PROVISION  
FOR  
**TEXTURED ASPHALT CROSSWALK**

P&N:KLM

1 of 4

12-30-2014

- A) Description.** This work consists of constructing and placing a 6 foot wide Textured Asphalt Crosswalk as shown on the drawings and herein. The Contractor doing this work shall be an Accredited StreetPrint Applicator as licensed by Integrated Paving Concepts Inc. (800-688-5652). StreetPrint applicators are reviewed on an annual basis and certificates are valid only for the calendar year. All StreetPrint applicators shall have a foreman, supervisor or lead-hand that has successfully completed a StreetPrint Level I or Level II training program. A copy of the current year level I or II accreditation certificate, as provided by Integrated Paving Concepts, will be supplied to the Engineer prior to the schedule of the work.

The proposed pattern and color shall be the following and as approved by the Engineer:

Pattern: Offset Brick <http://www.streetprint.com/lines/our-products/c/offset-brick>

Color: Terracotta <https://www.qcpinstaller.com/lines/streetbond/c/sr-colorants>

**B) Definitions.**

"StreetPrint Pavement Texturing" is defined as proprietary finishing system, which treats the surface of Hot Mix Asphalt Concrete (HMA) by imprinting freshly laid, fully compacted, asphalt, or reheated existing asphalt pavement, with "grid style" or other styles of depressions to replicate, in relief, the concrete grout depressions common to hand-laid brick or cobblestone, or any other design chosen by the owner, and coating the imprinted asphalt surface using the StreetBond Surfacing System.

"StreetBond" refers to a collection of coating products that have been specially formulated by Integrated Paving Concepts, Inc. for application on asphalt surfaces, to provide a durable, long lasting color and texture to the asphalt surface. These coatings shall have superior adhesion, flexibility and abrasion resistance as well as chemical resistance and good scrubability.

"StreetBond Surfacing System" is defined as a proprietary surfacing system consisting of multiple applications of one or more of the StreetBond coatings in a specific combination, suited to the project specific service conditions, to provide long lasting color and texture to the asphalt surface.

"Service Conditions" is defined as the conditions causing coating wear, which includes type of traffic, volume of traffic, amount of vehicle turning movements, snow clearing methods, deicing material such as sand and gravel, and the environmental conditions in which the StreetPrint application will exist in. The

Service Conditions dictate the amount of coating wear expected, and therefore the type of coating system required to with stand the expected wear.

"Imprinting Hot Mix Asphalt" is defined as pressing flexible templates into hot, fully-compacted, Hot Mix Asphalt to create the appearance of grout lines or patterns in the asphalt surface.

"Templates" are defined as flexible, woven wire rope cut and welded in various patterns, used for imprinting Hot Mix Asphalt.

"Level 1 Accredited StreetPrint Applicator" is someone who has successfully completed the StreetPrint Level 1 Accreditation Training Program. Level 1 Accreditation is obtained by attending a StreetPrint Training Program, successfully completing a written or oral test, and completing at least one StreetPrint project of at least 1000 sq. ft. area, that meets minimum criteria as set out by Integrated Paving Concepts, Inc.

"Reheating of the Asphalt Surface" is defined as the softening of existing compacted Hot Mix Asphalt by applying heat to the asphalt surface using equipment such as infrared heaters or hot air heaters. To avoid over heating or burning degradation of the asphalt surface, continuous monitoring of the surface temperature during the heating process using an infra-red thermometer is required. Equipment that is specifically excluded from this section and shall not be used for reheating of the asphalt is any form of direct flame heaters.

"Overheating of the Asphalt" is defined as applying excessive heat to the asphalt surface. This occurs when blue/black smoke is emitted from the surface. Overheating should be avoided, since coating adhesion is drastically affected when overheating occurs.

### **C) Construction Methods.**

#### **1) Imprinting of Hot Mix Asphalt Concrete**

Layout and imprinting of the brick pattern into the top course of the HMA shall be as per the drawings. The HMA pavements surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, deicing materials and chemical residue. Imprinting can proceed immediately after the HMA has been placed and compacted, while the asphalt is still in a warm to hot pliable state.

If approved by Engineer, imprinting can be carried out at a later stage, on existing asphalt, by applying heat to the asphalt surface to make the upper portion of the asphalt surface pliable enough to accept the imprint of the template. The application of heat to existing asphalt surface shall be done using re-heating equipment, such as infra-red heaters or hot air heaters. Overheating of the asphalt shall not be permitted. Direct flame heaters shall not be allowed to be used for the purpose of heating the asphalt. It is

required that the temperature of the asphalt surface be regularly monitored during the re-heating process, to avoid overheating and degradation of the asphalt cement.

## 2) Application of StreetBond Surfacing System

The StreetBond System to be used on the project shall be the system for wet climate zone of the following:

- 2 layers of Chem-Base 150
- 2 layers of SP-150E

## D) Materials.

### 1) Coating Offerings

Materials used in the StreetBond Textured Asphalt Surfacing Systems shall consist of:

#### **Chem-Base 150**

Street Bond Chem-Base 150 is a high-performance cementitious epoxy modified, acrylic based, waterborne surfacing product designed for application on textured HMA pavements only.

#### **StreetBond SP150E**

StreetBond SP 150E is a high performance premium coating material consisting of epoxy based acrylic polymers which provide a durable, long lasting color texture to the asphalt surface.

#### **StreetBond Colorant**

StreetBond Colorant is a highly concentrated, high quality, UV stable pigment blend designed to work with StreetBond SP50 and SP150E coating system. The same StreetBond Colorant color shall be used for each coating layer applied in the Coating System. The colors to be used shall be Terracotta or approved by owner.

## E) Installation.

### 1) Surface Imprinting

The Contractor shall follow the latest StreetPrint Application Procedures as issued by Integrated Paving Concepts Inc. The brick pattern shall be created in accordance with the design as agreed by the Owner or Owner's representative. Patterning shall begin once the asphalt has reached its final density and while there is still sufficient heat in the asphalt to permit imprinting. Patterning shall be of consistent depth.

If approved by Engineer, imprinting can be carried out at a later stage, on

existing asphalt, by applying heat to the asphalt surface to make the upper portion of the asphalt surface pliable enough to accept the imprint of the template. For proper imprinting success, the asphalt pavement must be adequately heat soaked (softened) to a depth of at least ½ inch (12.5 mm), without burning the asphalt. The asphalt surface temperature shall not exceed 300°F (150°C). If smoke is visible, that is an indication that the asphalt is burning and the pavement may spall or crumble at a later date. Regular monitoring of the surface temperature during heating is required to prevent over heating.

2) Surface System

The Contractor shall apply the StreetBond Surfacing System only when the air temperature is at least 50°F (10°C) and rising, and will not drop below 50°F (10°C) within 8 hours of application of the coating. There should be no precipitation expected within 2 hours after the StreetBond SP 150 top coat is dry to the touch.

Installation shall be in accordance with the latest StreetPrint Surfacing System Installation Instructions as issued by Integrated Paving Concepts Inc.

Prior to application of coatings, the asphalt surface shall be free of all dirt, mud, oil, or anything that will affect coating bond. If dirt has to be removed, the asphalt surface shall be power washed and allowed to dry completely before coating is applied.

3) Opening to Traffic

The StreetPrint recommendations will be followed to determine when the coated surface can be opened to traffic.

**F) Quality Assurance.**

4) StreetPrint

All StreetPrint projects shall have on site a foreman, supervisor or lead hand, who is registered with Integrated Paving Concepts, Inc., as a Level 1 Accredited StreetPrint Installer.

**G) Measurement and Payment.** The completed work as measured for Textured Asphalt Crosswalk shall be paid for at the contract unit price for the following contract pay item:

**Contract Item (Pay Item)**

**Pay Unit**

Textured Asphalt Crosswalk

Square Foot

**Textured Asphalt Crosswalk** shall be the square foot area of textured crosswalk (6 foot wide). The top course material used to construct the crosswalk shall be paid for as such. HMA quantities are included in the mainline paving quantities.

MICHIGAN  
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION  
FOR  
**TURF ESTABLISHMENT, PERFORMANCE**

DES:JLB

1 of 5

APPR:DMG:LML:01-13-15

**a. Description.** For the work identified in this special provision paid for by the pay item Turf Establishment, Performance only, delete section 816 of the Standard Specifications for Construction and replace it with this special provision. The Contractor is responsible for the performance and quality of turf growth in the areas indicated on the plans and as identified by the Engineer. Comply with all local, state and federal laws when completing this work.

Establish a durable, permanent, weed-free, mature, perennial turf. The work consists of fundamental turf work, including but not limited to topsoiling, seeding, mulching, erosion control, maintenance, watering and repair of turf as described herein during the life of the contract and during the life of any supplemental performance bond which may ensue.

Choose and implement proven turf establishment industry practices; provide all necessary labor and equipment; select and provide all turf establishment materials; and control erosion and any subsequent sedimentation at all times.

Perform a site analysis, interpret the results and implement a turf establishment program to ensure compliance with this specification. The site analysis must take into consideration topsoil needs, fertilizer and pH requirements, seed mix, existing and future soil moisture levels, slopes and grades, required erosion control items and devices, maintenance requirements, local highway snow removal and deicing practices, and any other characteristics that influence and affect turf establishment.

Subsection 107.11 of the Standard Specifications for Construction is revised relative to the Contractor's responsibility for the repair of turf establishment work as follows. The Contractor is responsible, at no additional cost to the contract, for the repair of turf establishment work occasioned by storm events up to 3 inches of rain in a 24 hour period as documented by local meteorological data submitted to the Engineer for review and approval. All other portions of subsection 107.11 remain unchanged.

1. Contractor Turf Establishment Experience Requirements. Ensure weed control is done by a commercial herbicide applicator, licensed by the State of Michigan and certified by the Michigan Department of Agriculture (MDA) in the appropriate category to apply herbicides. Use application procedures and materials according to federal, state and local regulations. Use of restricted use chemicals is prohibited. Provide appropriate documentation and secure approval from the Engineer before application of herbicides.

At least 10 work days prior to start of turf establishment, provide documentation to the Engineer, from the Contractor performing the turf establishment work, that they meet one or both of the following requirements.

A. At least one person employed by the Contractor performing the turf establishment work and assigned to the job site has a degree or certificate in Turf

Management, Horticulture or related field.

B. At least one person employed by the Contractor performing the turf establishment work and assigned to the job site has at least 5 years of experience in roadside turf establishment.

**b. Materials.** Provide topsoil, seed, mulch, pesticide, herbicide, mulch blankets and any other unique erosion control materials as necessary to fulfill this specification, as detailed on the plans. Use additional materials, as necessary, to meet the standards set forth for turf establishment in this special provision. The use of sod on the project requires the prior approval of the Engineer and if approved, may be used at limited site locations only.

Selection of all materials is the responsibility of the Contractor with the following minimum conditions.

1. Soil. Provide furnished or salvaged topsoil, which may be blended compost, that will support vigorous growth. Ensure topsoil is humus bearing and placed at least 4 inches deep. Ensure it is free of stones larger than 1/2 inch (2 inches on freeway projects) in diameter and other debris. Trim and grade the finished slope in accordance with subsection 205.03.N of the Standard Specifications for Construction.

2. Seed. Use a seeding mixture that is composed of four or more species of perennial grass. Use only species and their cultivars or varieties which are guaranteed hardy for Michigan.

Recommended species of perennial grasses include: Kentucky Bluegrass, Perennial Ryegrass, Hard Fescue, Creeping Red Fescue, Chewings Fescue, Turf-type Tall Fescue, Buffalo grass, and Alkaligrass-Fulfs Puccinellia distans. Select cultivars or varieties of grasses that are disease and insect resistant and of good color. Ensure that no one species in the mix is less than 5 percent, or more than 25 percent, of the mixture by weight. Do not select grass species considered noxious or objectionable, such as Quack Grass, Smooth Brome, Orchard Grass, Reed Canary Grass and others.

A. Ensure the seed is legally saleable in Michigan. Ensure the seed product does not contain more than 10 percent inert materials. Ensure the seed source is an MDOT approved certified vender.

B. Adapt the species and varieties of seed to the site conditions, to the site use, and to the soils, moisture and local climate. Site use may include, but is not limited to, detention pond, wildlife habitat, playground, wetlands, forested wetland, rural roadside, urban roadside and highly maintained front yard.

C. Ensure at least two of the species in the mixture proposed to be planted within 15 feet behind the curb or the shoulder are salt tolerant.

3. Mulch. Mulch seeded areas with the appropriate materials for the site conditions to promote germination and growth of seed and to mitigate soil erosion and sedimentation.

4. Herbicides. Comply with all federal, state and local laws. As part of the MDA weed control application, the Contractor is required to make proper notifications and/or postings as per label and MDA requirements for all locations that will be sprayed. Notify the Engineer at least 48 hours prior to any applications being made. Furnish and apply herbicide(s) as

needed. It is the Contractor's responsibility to select the herbicide(s) and the rate at which it is used. Obtain the Engineer's approval of work methods and herbicide(s) selected prior to the application of the herbicide(s). Complete a spray log and submit to the Engineer each day an application is made.

Do not draw water from any waterway (i.e. river, ditch, creek, lake etc.) located on state, county or municipal right-of-way, for mixing with herbicides.

5. Fertilizers. Furnish and apply fertilizer(s) as needed. It is the Contractor's responsibility to select the fertilizer(s) and the rate at which it is used. Phosphorus is allowed for use only at the time of planting and when required by soil conditions. Obtain the Engineer's approval of work methods and fertilizer(s) prior to the application of the fertilizer(s).

6. Water. Furnish and apply water from an approved source at a rate to promote healthy growth.

**c. Construction.** The Contractor is responsible for all work and all construction methods used in completing this work. Implementation of any part of the standard specifications or standard plans by the Contractor does not relieve the Contractor of responsibility for acceptability of the construction methods or for the quality of the work.

1. Inspection of the Work. The Contractor is responsible for all inspection of turf establishment work.

Use a Contractor's Daily Report, approved by the Engineer, to report inspections made and to document turf establishment work performed on this project. Complete and submit a Contractor's Daily Report to the Engineer when any work performed under this special provision is in progress.

Include all necessary materials documentation including tests slips, certifications, etc. with the associated Contractor's Daily Report.

The Engineer will determine the acceptability of the Contractor's Daily Report in terms of their completeness and accuracy. The Engineer reserves the right to verify all submitted measurements and computations. Failure by the Contractor to submit acceptable and timely reports to the Engineer may result in withholding of progress pay estimates on turf-related items until such time as reports are submitted and deemed acceptable.

The Engineer reserves the right to inspect the project for any reason in accordance with subsection 104.01 of the Standard Specifications for Construction, including the fulfillment of other inspection requirements such as Soil Erosion and Sedimentation Control, NPDES, etc. Inspections made by the Engineer do not relieve the Contractor of the responsibility for inspections required by this special provision or the Contractor's responsibilities for erosion control and turf establishment.

2. Erosion Control. Control erosion at all times according to section 208 of the Standard Specifications for Construction. Control of soil erosion is the responsibility of the Contractor. However, sedimentation controls must be placed as indicated on the plans or as directed by the Engineer. Continuously monitor the site for needed erosion repair from any cause as addressed in the contract. Return all eroded areas to original grade as detailed in the contract.



Take immediate corrective action if sedimentation occurs in drainage structures or any watercourse or water containment area and stabilize all disturbed areas contributing to this sedimentation within 24 hours after the erosion occurrence. Remove sediment deposited as a result of the Contractor's inability to control the soil erosion at the Contractor's expense.

Reimburse the Department for any costs levied against the Department, such as fines, environmental costs, costs for remedies required, or any other costs as a result of the Contractor's failure to comply with this special provision and with federal, state and local laws.

3. Erosion Repair. The Contractor is responsible for all repairs and liable for all consequences (legal, monetary or other) associated with erosion or sedimentation damage to finished or unfinished work.

Report all erosion occurrences and the repairs made by the Contractor to the Engineer in the format and at the frequency required by the Engineer. Repair any erosion, displacement or disturbance to ongoing or completed work by any cause at no additional cost to the contract unless otherwise noted herein.

The Contractor is responsible and liable for all traffic control and safety measures required to repair and protect damaged turf areas. Repair any eroded area that may affect the support of the roadbed or safety of the public within 24 hours of the erosion occurrence.

Place protective devices such as barriers, directional signs/signals, temporary fence, or any other safety measures immediately after any erosion damage occurs that has the potential of endangering the public. In these instances, provide the Engineer with a written summary of the immediate action taken describing the repairs made and the safety measures taken, within 24 hours of the occurrence of the damage.

4. Mowing and Weeding. Maintain turf to a visually appealing level, and not more than 8 inches in height at any time, prior to acceptance. Weeds must be controlled to less than 10 percent of the turf establishment area at all times during construction.

5. Final Acceptance and Supplemental Performance Bond.

A. Final Acceptance Parameters. Ensure before final acceptance of the turf establishment work, all of the following minimum parameters are met throughout all exposed areas of the project designated on the plans or identified by the Engineer as turf establishment areas: there must be no exposed bare soil and the turf must be fully germinated, erosion free, weed free, disease free, dark green in color and in a vigorous growing condition.

The Engineer will notify the Contractor of the dates and times of all acceptance inspections. The Contractor may accompany the Engineer during these inspections. If the Contractor does not agree with the decision made by the Engineer, the Contractor may request an inspection by a mutually agreed upon third party (Michigan State University Extension service or other). A joint inspection, to include the Engineer, the Contractor, and the third party, will be scheduled by the Engineer. Pay all expert fees and expenses charged by the third party.

B. Supplemental Performance Bond. In the event that all contract items of work are

completed, including the placement of all turf establishment items of work, and the final acceptance of the project is delayed because the final acceptance parameters for the turf establishment work have not been fully met; the Contractor may propose to the Engineer the use of a supplemental performance bond.

The bond serves to secure the successful completion of turf establishment work and fulfillment of all final acceptance parameters for the turf establishment work. Ensure the supplemental performance bond, in all respects, is satisfactory and acceptable to the Department and executed by a surety company authorized to do business with the State of Michigan.

Ensure the bond is in an amount equal to 50 percent of the turf establishment work items covered by this special provision. Ensure the bond remains in place for two growing seasons. At the discretion of the Engineer, the bond may be reduced on a prorated basis as portions of the areas designated for turf establishment on the project meet the final acceptance parameters.

Prior to commencement of any work necessary to meet the acceptance parameters during the bonded period, the Contractor must apply for a permit to work within MDOT right-of-way using Form 2205. The permit fee and an individual permit performance bond will not be required. The permit insurance requirements, however, will be required.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

**Pay Item**

**Pay Unit**

Turf Establishment, Performance.....Square Yard

**Turf Establishment, Performance** will include all labor, equipment and materials required or selected by the Contractor to install, maintain, inspect, repair and meet the acceptance parameters for turf establishment specified in this special provision, including preparation, updating and submittal of the Contractor's Daily Reports.

Repairs made to damaged turf establishment areas as a result of a documented storm by local meteorological data resulting in rainfall amounts of more than 3 inches in a 24 hour period will be paid for as an increase to original quantities in accordance with subsection 109.05 of the Standard Specifications for Construction.

The following schedule of payment applies to work performed according to this special provision. Upon completion of topsoil surfacing stage, 50 percent of the authorized amount for **Turf Establishment, Performance** will be paid to the Contractor. The remaining 50 percent of the authorized amount will be paid upon completion of all other work necessary to comply with this special provision and to meet all final acceptance parameters for **Turf Establishment, Performance** or at such time as the supplemental performance bond is accepted by the Department.

The supplemental performance bond and all costs associated with turf establishment work performed during the duration of the performance bond will not be paid for separately. These costs which may include, but are not limited to, mobilization, traffic control devices, and the required permit insurance are included in the unit price bid for **Turf Establishment, Performance**.