This is a Cover Sheet to the State's Owner and Contractor Standard Construction Contract, known as the *MICHSPEC™* Division 0 Specifications. The *MICHSPEC™* Division 0 Specifications have been developed from the FORMSPEC™ Michigan Model, 1997 Edition. Although the State's 2008 Version of the Division 0 Specifications are written as simply as practical, it is nonetheless advisable to consult with companion Guide to Specifiers when preparing specifications for a specific project. These Division 0 Specifications were developed by incorporating provisions and requirements furnished by the State into the FORMSPEC™ Michigan Model. These Division 0 Specifications have undergone detailed technical reviews by Department of Technology, Management and Budget, **State Facilities Administration** representatives and detailed legal reviews by the Department of the Attorney General for the State of Michigan. Specifiers are encouraged to consult with a Division 0 specifications specialist or an attorney knowledgeable in public contracts when preparing specifications for a specific project.

**STATE OF MICHIGAN**

**DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET**

**STATE FACILITIES ADMINISTRATION**

**MICHSPEC™ 2008 VERSION, OWNER AND CONTRACTOR**

**STANDARD CONTRACT FORMS AND CONDITIONS OF THE CONTRACT**

**MICHSPEC™ No. 97.0820 – 00020 THROUGH 97.0820 – 00440**

**RELEASED ON NOVEMBER 1, 1997.**

Developed from
Contract Forms and Conditions of the Contract
FORMSPEC™ Michigan Model
and suggested for use with
Bidding Requirements

# File No. 591/22274.MNB

# Detroit Garage Storm Sewer Reconstruction (Metro Region)
# 1500 E. Ferry Street, Detroit, MI 48211

January 31, 2025

**1997 Edition/R 02/24 Version**

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## SECTION 00020 GLOSSARY

**1.1 Defined Terms:**

1.1.1. The following terms or relative pronouns used in Division 0 of the Specifications have these intent and meanings:

*Activity*– An element in the Progress Schedule establishing a requisite step, or the time and resources required, for completing the part of the Work associated with that Activity.

*Addenda*– Written instruments that are used by the **Owner** and/or **Professional** to incorporate interpretations or clarifications, modifications, and other information into the Bidding Documents. An Addendum issued after Bid opening to those Bidders who submitted a Bid, for the purpose of rebidding the Work without readvertising, is referred to as a post-Bid Addendum.

*Agreement*– The written agreement between the **Owner** and **Contractor** covering the Work to be furnished and performed.

*Alternate*– Refers to Work specified in the Bidding Documents for which the Bidder shall bid a Bid Price in the space provided in the Schedule of Alternates in Section 00300 Bid Form.

*Apparent Low Bidder*:- Those Bidders whose Base Bid, when added to those specific Alternates the Owner intends to accept, yields the three lowest sums of Base Bid and Alternates. Additional Bidders may be considered Apparent Low Bidders if their Base Bid, when added to those specific Alternates the Owner intends to accept, yields a sum within 10% of the lowest of the Apparent Low Bidder's sum. If a qualified disabled veteran meets the requirements of the contract solicitation and with the veteran's preference is the lowest Bidder is considered the Apparent Low Bidder.

*Archaeological Feature*– Any prehistoric or historic deposit of archaeological value, as determined by a representative of a State agency that is duly authorized to evaluate such findings and render such judgments. An Archaeological Feature deposit may include, but is not limited to Indian habitations, ceremonial sites, abandoned settlements, treasure trove, artifacts, or other objects with intrinsic archaeological value and that relate to the history and culture of the State of Michigan.

*As-Planned Schedule*– The **Contractor's** Revision 0 Progress Schedule returned to the **Contractor** as "Resubmittal Not Required," with or without comments or objections noted.

*Authorized Technical Data*– Information and data contained in a report of exploration and tests of subsurface conditions that are expressly designated in paragraph 2.0 of Section 00210 Information for Bidders. Also, any physical data (dimension, location, conditions, etc.) contained in those drawings of physical conditions of existing surface and subsurface facilities identified in paragraph 3.0 of Section 00210 Information for Bidders.

*Bar Chart Schedule*– Activity schedule, in a bar chart format, that accounts for the entire Work at a level of detail commensurate with the Progress Schedule requirements of the Contract Documents.

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*Bid*– Written offer by a Bidder for the Work, as specified, which designates the Bidder's Base Bid and Bid Prices for all Alternates. The term *Bid* includes a *Rebid*.

*Bidder*– The Person acting directly, or through an authorized representative, who submits a Bid directly to the **Owner**.

*Bidding Documents*– The proposed Contract Documents as advertised, and all Addenda issued before Bid opening, and after Bid opening, if the Work is rebid without readvertising.

*Bid Price*– The Bidder's price for a lump sum item of Work, or the product of the Bidder's unit price for an item of Unit Price Work times the quantity given on the Bid Form for that item.

*Bid Security*– A security serving as a guarantee that the Bidder will conform to all conditions requisite for its return or as liquidated damages in the event of failure or refusal to conform.

*Bidding Requirements*– The Advertisement, Instructions to Bidders (including Attachment A), Supplementary Instructions, Information for Bidders, Bid Form, Bid Form Attachments and Qualification Submittals, as advertised and as modified by Addenda, and any other Section included within Division 0 of the Bidding Documents for the purpose of governing bidding and award of the Contract.

***AD Board***– The Administrative Board of the State of Michigan.

*Bonds*– *Section 00310 Bid Bond, Section 00610 Performance Bond* and *Section 00620 Payment Bond* are security furnished by the **Contractor**, as required by the Contract Documents.

*Business Day*– Any Day except Saturdays, Sundays and holidays observed by the **Owner.**

*Bulletin*– A standard **DTMB or other PSC** form used by the **PSC & Owner** to describe a change in the Work under consideration by the **Owner** and to request the **Contractor** to submit a proposal for the corresponding adjustment in Contract Price and/or Contract Time, if any.

*Calendar Day*– Every day shown on the calendar, Saturdays, Sundays, and holidays included.

*Cash Allowance*– An **Owner**-specified sum included within the Contract Price to reimburse the **Contractor** for the actual purchase/furnished cost of materials and/or equipment or other designated items, as specifically provided in the Contract Documents. Although the scope (e.g., the required quantity) of any Work covered by a Cash Allowance is sufficiently

detailed in the Contract Documents for the purposes of bidding the required labor costs, Subcontract costs, construction equipment costs and general conditions costs and Fee, it is understood that the required materials, equipment or other designated items are of uncertain purchase cost at the time of Bid or are yet to be specified in more detail by the **Professional** as to quality, appearance, durability, finish and such other necessary features affecting purchase price.

*Change Authorization*– A written order issued and signed by the **Professional,** which directs changes in the Work that require no adjustment in Contract Price or Contract Time, or which allows for variations in the quantities of Unit Price Work.

*Change Order*– A written order issued and signed by the **Owner**, which amends the Contract Documents for changes in the Work or an adjustment in Contract Price and/or Contract Time, or both.

*Construction Mechanic*– A skilled or unskilled mechanic, laborer, worker, helper, assistant, or apprentice working on a state project but shall not include executive, administrative, professional, office, or custodial employees

*Contact Person*– Individual in the employ of the **Professional** or the **Owner** who is designated as the sole point of contact for prospective Bidders for requests or inquiries concerning the Work and/or the Bidding Documents.

*Contract*– Refer to the definition in paragraph 1.1 of Section 00500 Agreement. The term “Contract” encompasses the legal obligations of the **Owner** and **Contractor**, as defined by the Contract Documents.

*Contract Award*– The official action of the **Board**, the **Director-SFA** or the **Director-DCD** awarding the Contract to the **Contractor**.

*Contract Documents*– Those documents itemized or designated in paragraphs 2.2 through 2.4 of Section 00500 Agreement.

*Contract Float*– Calendar Days between the **Contractor's** anticipated date for early completion of the Work, or of a specified portion of the Work, if any, and the corresponding Contract Time.

*Contract Price*– The Contract price for the Work, or a designated portion of the Work, as designated in Section 00500 Agreement or elsewhere in the Contract Documents, is the total compensation, including authorized adjustments, payable by the **Owner** to the **Contractor** (subject to provisions for Unit Price Work).

*Contract Times*– The Contract Times for the entire Work are the periods allowed, including authorized adjustments, for Substantial Completion and final completion of the Work. The Contract Times for a designated portion of the Work are the periods allowed for Substantial Completion and final completion of any such portion of the Work, as specified in the Contract Documents.

***Contractor***– Person named "the **Contractor**" in Section 00500 Agreement with whom the **Owner** has entered into the Contract.

*Correction Period*– The period during which the **Contractor** shall, in accordance with the Contract Documents, (a) correct or, if rejected, remove, and replace Defective Work, and (b) maintain warranties for materials and equipment in full force and effect.

*Cost of the Work Involved*– The sum of all costs that would be, or were, necessarily incurred by the **Contractor** in providing any Work Involved with the related change, less the costs that would be, or would have been, incurred by the **Contractor** to provide such Work without the related **change**.

*CPM Schedule*– Computerized, Activity-based Progress Schedule, using Critical Path Method (CPM) techniques, and accounting for the entire Work at a level of detail commensurate with the Progress Schedule requirements of the Contract Documents.

*Critical Path Method (CPM)*– The Critical Path Method of planning and scheduling. The term “Critical Path” denotes a sequence of Activities controlling achievement of a specified Contract Time.

*Date of Commencement of the Contract Time*– The date when the Contract Time starts to run.

*Defective*– An adjective which when referring to or when applied to the term “Work” refers to (a) Work not conforming to the Contract Documents or not meeting the requirements of any inspection, test, or approval, or (b) Work itemized in a Punch List which the **Contractor** fails to complete or correct within a reasonable time after issuance of the Punch List by the **Professional**.

*Defective Work/Non-Compliance Notice* – A DTMB-0499 form or equivalent issued to identify defective or non-compliant conditions requiring response and remedy by the **Contractor.**

*Delay*– Any act or omission or other event that in any manner adversely affects or alters the schedule, progress or completion of all or any part of the Work. Delay is a generic term intended to include deferral, stoppage, slow down, interruption and extended performance, and all related hindrance, rescheduling, disruption, interference, inefficiency and productivity and production losses.

***Department (DTMB)***– Department of Technology, Management and Budget of the State of Michigan. ***Director*** is the Director of the **Department.**

***Director-SFA***- The Director of **DTMB** State Facilities Administration.

***Director-DCD***- The Director of **DTMB** State Facilities Administration, **Design and Construction Division**

*Division*– Each of the numbered, distinct parts (starting with Division 0) into which the Specifications are divided.

*Drawings*– Part of the Contract Documents showing the Work. Drawings shall neither serve nor be used as Shop Drawings.

*Early (Late) Dates*– Early (late) times of performance for the Activities.

*Emergency*– A condition affecting the safety or protection of persons, or the Work, or property at or adjacent to the site.

*Fee for the Work Involved (Fee)*– A negotiated, percentage mark-up on the Cost of the Work Involved which is allowed to the **Contractor** for (a) reasonable administrative costs, and (b) negotiated, reasonable profit on the Cost of the Work Involved.

*General Requirements*– Division 1 of the Specifications.

*Hazardous Material*– Asbestos, ACBMs, PCBs, petroleum products, such construction materials as paint thinners, solvents, gasoline, oil, etc., and any other like material the manufacture, use, treatment, storage, transportation, or disposal of which is regulated by federal, State, or local Laws governing the protection of public health, natural resources, or the environment.

***State Facilities Administration***- Entity in the **Department** of Technology, Management and Budget responsible for design, construction, and operations and maintenance of facilities and capital renewal.

***State Facilities Administration*** *Representative*- Designated DTMB-SFA **Design and Construction Division Project Director** (a) Responsible for directing and supervising the **Professional's** services during the period allowed for completion of the Work; and/or (b) Acting as representative for the **Owner** and for the enforcement of the Contract Documents, approving payment to the **Contractor** and coordinating the activities of the State, **Owner, Professional** and **Contractor.**

*Law(s)*– Means federal, state, and local statutes, ordinances, orders, rules and/or regulations.

*MCL*– The Michigan Compiled Laws of the State of Michigan.

*Means and Methods*– Includes means, methods, techniques, sequences and/or procedures applicable to the Work.

*Notice of Award*– Written notice accepting the Bid to the lowest responsive, responsible Bidder and designating the Contract Price (and establishing the Alternates accepted by the **Owner**).

*Notice to Proceed*– Written notice authorizing the **Contractor** to proceed with the Work, or a designated portion of the Work, and establishing the Date of Commencement of the Contract Time.

*On-Site Inspection*– The **Professional's** on-site examination of the **Contractor's** completed or in progress Work to determine and verify to the **State Facilities Administration** Representative that the quantity and quality of all Work is in accordance with the requirements of the Contract Documents.

***Owner***– The State of Michigan, named "the **Owner**" in Section 00500 Agreement, with whom the **Contractor** has entered into the Contract and for whom the Work is to be provided. The State of Michigan includes its departments, agencies, boards, commissions, officers, employees, and agents.

*Partial Use*– The use, by the **Owner,** of a designated portion of the Work before accomplishing Substantial Completion of the entire Work. Partial Use does not implicate or refer to Substantial Completion of the portion of the Work placed in use by the **Owner**.

*Person*– Individuals, partnerships, corporations, receivers, trustees, joint ventures, and any combinations of any of them.

*Political Subdivision*– Any county, city, village, or other local unit of the State, including any agency, department, or instrumentality of any such county, city, village, or other local unit.

*Pre–Award Schedule*– A Qualification Submittal required of the Apparent Low Bidder before Contract Award, and which is used by the **Owner** in the evaluation of the Apparent Low Bidder's Bid.

***Professional Services Contractor*** *(**Professional**)*– The Person or its authorized representative licensed to practice architecture and/or engineering, named as "**Professional**" in Section 00500 Agreement, who has the right and authority assigned in the Contract Documents. The term **Professional** includes the **Professional's** consultants practicing the disciplines required by the Contract Documents. If the **Owner** will function as the **Professional**, such information will be noted in Section 00800 Supplementary Conditions or at the pre-construction conference.

*Progress Schedule*– Work Schedule that shows the **Contractor's** approach to planning, scheduling, and execution of the Work and that accurately portrays completed Work as to sequencing and timing, as provided in the Contract Documents.

*Project*– The total construction, which includes the Work and possibly other work, as indicated in the Contract Documents.

*Project Field Representative*– A **DTMB-SFA** Design and Construction employee or consultant, acting in collaboration and with direction from the **DTMB-SFA-DCD Project Director**, providing on-site, periodic observation and documentation of the Work for compliance with the Contract Documents.

*Project Manual*– The Book of Specifications, containing Division 0 of the Specifications and the technical Specifications.

*Provisionary or Contingency Allowance*– An amount included within the Contract Price to reimburse the **Contractor** for the cost to furnish and perform Work that is uncertain, i.e., may not be required, or is of indeterminate scope, i.e., design information and quantities, complexity, etc. are neither shown nor detailed in the Contract Documents. Work authorized under any Provisionary Allowance may consist of (a) changes

required by actual conditions, as determined by the **Professional**, that are incorporated into the Work in accordance with Section 00700 General Conditions, and (b) any other Work authorized and completed under the pertinent provisions of the Contract Documents. Unlike a Cash Allowance, payments under a Provisionary Allowance shall include not only the purchase/furnished cost of the materials and equipment involved, but also all related labor costs, Subcontract costs, construction equipment costs, general conditions costs and Fee, provided they are calculated in accordance with the requirements of Articles 10 and 11 of Section 00700 General Conditions.

*Public Utility*– Any utility company, utility department or agency of a Political Subdivision, natural gas pipeline company, cable TV company, or any other owner/operator of utilities that are operated or maintained in, on, under, over or across public right-of-way or public or private easements and which is defined as "Public Utility" under the provisions of 2013 PA 174, as amended, MCL 460.721.

*Punch List*– A list of minor items to be completed or corrected by the **Contractor,** any one of which do not materially impair the use of the Work, or the portion of the Work inspected, for its intended purpose. A Punch List shall be prepared by the **Professional** upon having decided that the Work, or portion of the Work inspected, is substantially complete and shall be attached to the respective certificate of Substantial Completion.

*Qualification Submittals*– Data concerning a Bidder's qualifications and eligibility, as specified in the Bidding Requirements.

*Rebid*– A revised or new Bid submitted by a Bidder on the Section 00300 Bid Summary and Bid Form and the Bid Form Attachments made available through post-Bid Addenda, in the event the Work is rebid without readvertising, as allowed by post-Bid Addenda.

*Record Documents*– Drawings, Specifications, Addenda, Change Orders, Change Authorizations, Bulletins, inspection, test and approval documentation, photographs, written clarifications and interpretations and all other documents recording, or annotated to show, all revisions and deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

*Records*– Books, reports, documents, and other evidence relating to the bidding, award and furnishing and performance of the Work.

*Record Schedule*– A Progress Schedule Revision Submittal returned to the **Contractor** as "Resubmittal Not Required," with or without comments or objections noted.

**Recycled Material*– Recycled paper products, structural materials made from recycled plastics, refined lubricating oils, reclaimed solvents, recycled asphalt and concrete, recycled glass products, retreaded tires, ferrous metals containing recycled scrap metals and all other materials that contain (a) waste materials generated by a business or consumer, (b) materials that have served their intended purpose, and/or (c) materials that have been separated from solid waste for collection, recycling and disposition in the percentage determined by the State as provided by Law.

*Request for Payment*– The form provided by the **Owner** (Payment Request DMB-440) to be used by the **Contractor** in requesting payment for Work completed, which shall enclose all supporting information required by the Contract Documents.

*Resident Project Representative*– The authorized representative of the **Professional** who is assigned to the site.

*Schedule of Values*– A schedule of pay items, which subdivides the Work into its various parts and which details, for each itemized part, cost and pricing information required for making payments for Work performed. The sum of all pay item costs in the Schedule of Values shall equal the Contract Price for the Work.

*Shop Drawings*– Includes drawings, diagrams, illustrations, standard schedules, performance charts, instructions and other data prepared by or for the **Contractor** to illustrate some part of the Work, or by a Supplier and submitted by the **Contractor** to illustrate items of material or equipment.

*Soil Erosion and Sedimentation Control*– The planning, design and installation of appropriate Best Management Practices designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. Soil erosion and sedimentation control in the State of Michigan is regulated under The Natural Resources Environmental Protection Act; Soil Erosion and Sedimentation Control, 1994 PA 451, Part 91, as amended, MCL 324.9101 et seq. Soil erosion and sedimentation control associated with this Contract is monitored and enforced by the **Department** of Technology, Management and Budget, State Facilities Administration.

*Specifications*– Parts of the Contract Documents organized into Divisions. "Technical Specifications" means Divisions of the Specifications consisting of technical descriptions of materials, equipment, construction systems, standards, and workmanship.

*State*– The State of Michigan in its governmental capacity, including its departments, agencies, boards, commissions, officers, employees, and agents. Non-capitalized references to a state refer to a state other than the State of Michigan.

**State Construction Code*– The Michigan State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq.

*Sub agreement*– A subcontract or purchase order awarding a part of the Work to a Subcontractor or Supplier.

*Subcontractor*– A Person having a Sub agreement for providing labor at the site, or for providing labor at the site and furnishing materials and/or equipment for incorporation into the Work.

*Submittals*– Includes technical Submittals, Progress Schedules and those other documents required for

submission by the Contract Documents. The term "technical Submittal" includes Shop Drawings, brochures, samples, Operation and Maintenance (O&M) Manuals, test procedures and any other Submittal the Contract Documents require the **Contractor** to submit to demonstrate how the items covered, after installation or incorporation into the Work, will conform to the information given in the Contract Documents and be compatible with the design of the completed Work as a functioning whole as indicated in the Contract Documents.

*Substantial Completion*– The Work, or a portion of the Work designated in the Contract Documents as eligible for separate Substantial Completion, has been completed in accordance with the Contract Documents, to the extent that the **Owner** can use or occupy the entire Work, or the designated portion of the Work, for the use intended without any outstanding, concurrent Work at the site, except as may be required to complete or correct Punch List items. Prerequisites for Substantial Completion, over and above the extent of Work completion required, include (a) receipt by the **Owner** of operating and maintenance documentation, (b) all systems have been successfully tested and demonstrated by the **Contractor** for their intended use, and (c) the **Owner** having received all required certifications and/or occupancy approvals from the State and those Political Subdivisions having jurisdiction over the Work. Receipt of all certifications and/or occupancy approvals from those Political Subdivisions with jurisdiction in and of itself does not necessarily connote Substantial Completion.

*Supplementary Conditions*– Section 00800 within Division 0 of the Specifications that amends and/or supplements Section 00700 General Conditions and other designated Contract Documents.

*Supplementary Instructions*– Section 00120 within Division 0 of the Specifications that amends and/or supplements Section 00100 Instructions to Bidders and any other designated Bidding Requirement.

*Supplier*– A manufacturer or fabricator, or a distributor, material man or vendor representing a manufacturer or fabricator, who has a Sub agreement for furnishing materials and/or equipment.

*Target*– A point of progress for a key part of the Work, which is identified for monitoring progress of the Work. Target Times are not Contract Times.

*Total Float*– Number of Calendar Days by which the Work or any part of the Work may be delayed from its Early Dates without necessarily causing an overrun in a pertinent Contract Time. Total Float is by definition at least equal to Contract Float.

*Underground Utilities*– Pipelines, piping, conduit, duct, cables, wells, tanks, tunnels and appurtenances, or other similar facilities, installed underground to convey or support conveyance of potable water, sprinkler or irrigation water, fire protection systems, electricity, gases, steam, petroleum products, sewerage and drainage removal, telephone, communications, cable TV, traffic, or control systems.

*Unit Price Work, Contingent*– Work involving specified but undefined quantities (i.e., related Work quantities are not detailed in the Contract Documents) which when performed is measured by the **Professional** and paid using the measured quantities and unit prices contained in the Contract Documents. Performance of such Unit Price Work is contingent upon conditions encountered at the site, as determined, and authorized by the **Professional**.

*Unit Price Work, Specified*– Work of specified and defined quantities (i.e., quantities are detailed in, and can be taken-off from, the Contract Documents) that when performed is measured by the **Professional** and paid based on the measured quantities and unit prices contained in the Contract Documents.

*Work* (as in *"the Work,"* "*the entire Work*)– The entire *completed Construction* required by the Contract Documents. The Work results from furnishing and performing all services, obligations, responsibilities, management, supervision, labor, materials, equipment, construction equipment, general conditions, permits, taxes, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, field supplies, Bonds, insurance, mobilization, close-out, overhead and all connections, devices and incidental items of any kind or nature required and/or made necessary by the Contract Documents.

*Work Involved, any Work Involved*–Existing or prospective Work (a) reflected in any notice, proposal, or claim, or (b) reflected in changes ordered or in process, or (c) affected by Delay.

1.1.2. Other defined terms used in Division 0 but not assigned intent and meanings in this Section 00020 Glossary have the intent and meanings set forth in MCL or Section 00800 Supplementary Conditions.

1.1.3. Terms defined in this Section 00020 Glossary and used in other Specifications and/or in the Drawings in lower cases, or as capitalized terms, have the intent and meanings assigned to them in this Section 00020 Glossary if the context will permit.

**1.2 Division 0 Rules of Construction:**

1.2.1. Each Article in a Section in Division 0 contains “sub-articles,” numbered as this sub-article 1.2 is numbered; “parts,” numbered as this part 1.2.1 is numbered, and “sub-parts,” all of which are considered "paragraphs." A reference to a paragraph means a reference to the sub-article, part or sub-part, or any combination of any of them, if the context will permit.

1.2.2. Any reference to an Article or a paragraph in a Section within Division 0 means a reference to an Article or a paragraph in the very Section in which the reference is made, unless that reference specifically names another Section.

1.2.3. Whenever the context of any provision requires, the singular number includes the plural number and vice versa, and the use of any gender includes all genders

**END OF SECTION 00020**

## SECTION 00030 ADVERTISEMENT

**1. Invitation to Bid (ITB)** – Your firm is invited to submit a Bid. The State of Michigan as the Owner will receive **bids electronically through the SIGMA VSS website at https://sigma.michigan.gov/PRDVSS1X1/Advantage4** until 2:00 p.m., ET, on 3/19/2025. The State reserves the right to cancel this Invitation to Bid (ITB) or change the date and time for submitting Bids by announcing same at any time before the established date and time for Bid opening. Bids must remain open for acceptance by the Owner for no less than the Bid hold period. Contractor may agree to extend the Bid hold period. However, any such extension must be based upon no increase in the Bid Price and/or Contract Time.

**2. Work Description** – The Work, MDOT Detroit Garage Storm Sewer Reconstruction, Agency No. 591, File No. 22274.MNB includes, but is not necessarily limited to Replacement of existing stormwater catch basins, structures, and pipes along with construction of a new detention pond and forebay. Approximate project size: 2.0 acres. Refer to prints for more information. Other items include general regrading and earthwork to promote drainage, construction of a new landscaping screening berm on the property, plumbing and electrical modifications for new lift stations, and other improvements associated with the items listed above. The work will also require removal of contaminated soil to a type II non-hazardous landfill facility. See schedule of alternates for description of roofing and additional foundation repair/waterproofing work. The site is located at 1500 E Ferry Street, Detroit, MI 48211, as shown on the Drawings.

**3. Bidding Documents** –– Sets of Bidding Documents may be obtained at:

**https://sigma.michigan.gov/PRDVSS1X1/Advantage4**

**4. Bid Security** – Each Bid shall enclose Bid Security, as specified in Section 00100 Instructions to Bidders (and as specified in Section 00310 Bid Bond, if a Bid Bond is enclosed), in the amount of five percent (5%) of the Bidder's Base Bid. *If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to:*

State Facilities Administration
Design & Construction Division
3111 W. St. Joseph Street
Lansing, Michigan 48917

*All other Bid information must be submitted via SIGMA as per standard bidding procedure.*

**5. Pre-Bid Conference** – A mandatory ☒☐ voluntary ☐ pre-bid conference will be held at 1500 E Ferry Street, Detroit, MI on 2/27/2025 at 10:00 AM ET. A tour Click or tap here to enter text. will ☒☐ will not ☐ be held on the same day, starting at 10:00 AMEnter time ET. All prospective Bidders and other parties interested in the Work are required ☒☐ encouraged ☐ to attend the tour, if held. Addenda may be issued, in response to issues raised at the pre-bid conference and tour, or as the **Owner** and/or **Professional** may otherwise consider necessary.

An individual is only permitted to represent one bidder at a mandatory Pre-Bid Conference.

FOR CORRECTIONAL FACILITIES ONLY: All contractor/vendor representatives attending a Pre-Bid Walk Through Meeting must submit a Vender/Contractor LEIN Request five business days prior to the meeting date, (Lien Request For CAJ-1037 attached to Bid posting). Send the LEIN Request form, filled out and signed, by email to SmithD76@michigan.gov & FrostS1@michigan.gov . The email "Subject" must include Facility Name, Project Name, Date & Time of Pre-Bid Walk Through Meeting).

**6. SIGMA VENDOR NUMBER:** If you are bidding a State job for the first time, visit the State of Michigan SIGMA website, https://sigma.michigan.gov/PRDVSS1X1/Advantage4, and follow the "SOM VSS User Guide for New Vendors" instructions, located under Forms and Reference Documents. Registration is required for bid submission. **Do not wait until the last minute to submit a proposal**, as the SIGMA system requires the creation of an account and entry of certain information, in addition to uploading and submitting the materials. The SIGMA system **will not** allow a proposal to be submitted after the proposal deadline, even if a portion of the proposal has been updated.

Questions on how to submit information or how to navigate in the SIGMA VSS system can be answered by calling **(517) 373-4111 or (888) 734-9749**.

**7. Equal Employment Opportunity** – Covenants not to discriminate in employment by contractors, subcontractors and suppliers required by Law are contained in paragraph 14.12 of Section 00100 Instructions to Bidders and paragraph 7.12 of Section 00700 General Conditions and are applicable to the Work and any Sub agreement under the Contract.

**8. Contract Times** – The Contract Times and the associated liquidated damages are specified in Article 4 of Section 00500 Agreement.

**9. Contact Person** – All requests or inquiries concerning the Bidding Documents, or the Work shall be addressed to David Lutz, 248-62-2750, dlutz@nthconsultants.com

**10. Award** – Subject to any agreed extension of the period for holding Bids, Bids shall remain valid for acceptance by the **Owner** for sixty (60) Calendar Days after the date of Bid opening. In addition, the **Owner** expressly reserves the right, within the **Owner's** sole discretion, to reject any or all Bids, to waive any irregularities, to issue post-Bid Addenda and rebid the Work without re-advertising, to re-advertise for Bids, to withhold the award for any reason the **Owner** determines and/or to take any other appropriate action.

**END OF SECTION 00030**

## SECTION 00100 INSTRUCTIONS TO BIDDERS

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## ARTICLE 1 BIDDING DOCUMENT INTERPRETATIONS

1.1. Section 00020 Glossary assigns specific intent and meanings to capitalized terms and to other defined terms used in Section 00030 Advertisement, this Section 00100 Instructions to Bidders and Section 00210 Information for Bidders. The Glossary also provides specific rules for construing any reference to any Article or paragraph that is made in this Section 00100.

1.2. The deadlines and submission requirements imposed on the Bidders by the provisions of Articles 3 and 4 also shall apply to any prospective subcontractor or supplier seeking access to the site or needing to submit written questions or inquiries.

1.3. Except as otherwise noted, the deadlines and other requirements imposed upon the "Apparent Low Bidder" by the provisions of Articles 2, 5, 8 and 13 also shall apply to any other Bidder remaining or wishing to remain in contention for the award.

1.4. Neither the **Owner** nor **Professional** assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents in preparing Bids. The **Owner** and **Professional** make Bidding Documents available only for obtaining Bids, and neither the **Owner** nor **Professional** grants a license for any other use of the Bidding Documents.

## ARTICLE 2 QUALIFICATIONS OF BIDDERS

2.1. The Apparent Low Bidder shall submit to the **Professional**, within two (2) Business Days after receipt of the **Professional's** request, Section 00430 List of Subcontractors. The Apparent Low Bidder also shall submit to the **Professional,** within five (5) Calendar Days after the **Professional's** request, a Pre–Award Schedule and those other Qualification Submittals noted in Sections 00410, 00420 and 00440. The Apparent Low Bidder(s) may be required to attend a pre-award conference(s).

2.2. The Pre–Award Schedule shall consist of a time-scaled CPM Schedule or a Bar Chart Schedule, as designated by the **Professional**. The Pre–Award Schedule shall (a) identify start and completion dates for the Work in summary form, (b) show the sequencing in which the Bidder plans to perform the Work to conform to the Contract Times and sequences of Work indicated in or required by the Bidding Documents, and (c) include a plot with percentages of completion for the Work correlating to the start and completion dates.

2.3. Unless otherwise determined by the **Owner**, in its sole discretion, failure, neglect or refusal by the Apparent Low Bidder to submit Qualification Submittals when and as requested justifies the **Owner's** refusal to consider the Apparent Low Bidder's Bid and the Apparent Low Bidder's Bid Security will be forfeited to the **Owner** as liquidated damages. However, in the case of any other Bidder remaining or wishing to remain in contention for the award, such failure, neglect, or refusal will not constitute grounds for forfeiting that other Bidder's Bid Security

**ARTICLE 3 BIDDING DOCUMENTS; SITE CONDITIONS. SAFETY REQUIREMENTS; LAWS**

3.1. It is the responsibility of each Bidder, before submitting a Bid, to: (a) examine the Bidding Documents thoroughly; (b) visit the site and, if necessary, record conditions at the site (through logs/notes, photographs, video or any other means); (c) study and correlate the Bidder's observations with the Bidding Documents; and (d) submit written questions or inquiries about the Bidding Documents or the Work, as provided in Article 4, immediately after discovering any conflicts, ambiguities, errors or omissions in the Bidding Documents.

3.2. It is also the responsibility of each Bidder, in the preparation of its Bid, to take those steps that are reasonably necessary to (a) ascertain and satisfy itself of the physical conditions under which the Work will be performed and the condition of existing facilities, including those which may not be a part of the Work, but could be affected by the performance of the Work, and (b) account for all general, local and prevailing conditions at or near the site that may in any manner affect the cost, schedule, progress, performance or furnishing of the Work. Examples of such conditions include, but are not limited to: (a) the nature and location of the Work; (b) conditions related to the transportation, disposal, handling and storage of materials; (c) the availability and suitability of labor, materials, water, electric power, telephone, sanitary services and roads; (d) daily and monthly weather variations, including any related subsurface conditions, river stages, or similar conditions; (e) the character, quality and quantity of surface and subsurface conditions at the site, including but not limited to ground water table variations, and the location, configuration and condition of existing facilities and Underground Utilities; (f) the character of equipment and facilities needed preliminary to and during Work performance; (g) conditions related to maintaining the uninterrupted operation/occupancy of existing services or facilities; and (h) the extent to which the nature, characteristics and use of any adjacent or nearby lands, rights-of-way and easements, and facilities (in all cases, inclusive of real and personal property) may affect the Bidder's activities.

3.3. It is the responsibility of each Bidder to inform itself of, and the Bidder awarded the Contract shall comply with, all applicable Laws, including, but not limited to Laws affecting cost, schedule, progress, performance or furnishing of the Work. Examples of those Laws include, but are not limited to, those relating to nondiscrimination in employment, prevailing wages, protection of public and employee health and safety, environmental protection, building codes, fire protection, grading and drainage, use of explosives, vehicular traffic, restoration of lands and property under the control of the State or a Political Subdivision, taxes, permits and licensing.

3.4. Section 00210 Information for Bidders identifies (a) reports of explorations and tests of subsurface conditions, and (b) drawings of physical conditions of existing surface and subsurface facilities that have been used by the **Professional** in the preparation of the Bidding Documents. Bidders may rely upon such expressly stated technical information and data contained in those reports which are expressly designated as Authorized Technical Data in Section 00210 Information for Bidders, but those reports and drawings are not part of the Bidding Documents.

3.4.1. Any conclusions or interpretations made by any Bidder based on such Authorized Technical Data shall be at the Bidder's own risk. Reliance by any Bidder on any Non-technical Information or Data, interpretations or opinions contained in those reports or drawings also shall be at the Bidder's own risk. The **Owner**, **Professional** and their respective consultants assume no responsibility for any understanding reached or representation made about subsurface conditions and physical conditions of existing facilities, except as otherwise expressly shown in or represented by the Authorized Technical Data made available.

3.4.2. Section 00210 Information for Bidders also identifies additional reports of explorations and tests of subsurface conditions and reference documents reflecting physical conditions of existing surface and subsurface facilities that have not been used by the **Professional** in the preparation of the Bidding Documents. Any such reports and documents are not part of the Bidding Documents and are made available solely to allow Bidders to have access to the same information available to the **Owner** and **Professional**. Neither the **Owner** nor **Professional** warrants the accuracy or completeness of any such information nor do they warrant that Section 00210 Information for Bidders identifies all such existing relevant reports and/or documents.

3.5. Section 00210 Information for Bidders also identifies information and data shown or indicated in the Bidding Documents or Underground Utility drawings about Underground Utilities. Such information and data about existing Underground Utilities is based on information and data obtained from record documents of previous construction or furnished to the **Owner** by the owners of those Underground Utilities or by others.

3.6. Section 00700 General Conditions contain provisions concerning (a) responsibilities for Underground Utilities, (b) changes that may be ordered because of incidents with differing site conditions, and (c) the adequacy and completeness of the Authorized Technical Data of subsurface conditions and existing subsurface and surface facilities made available to Bidders.

3.7. To the extent that any Bidder considers that additional Authorized Technical Data is necessary for determining its Bid, it is the responsibility of that Bidder to request from the **Owner** the necessary additional Authorized Technical Data. In the event the **Owner** does not have the requested additional Authorized Technical Data, it shall be the responsibility of the Bidder, at the Bidder's sole cost, to undertake reasonable examinations of the site and any other pertinent available information and data that the Bidder considers necessary for determining its Bid.

3.8. If requested by a Bidder at least seven (7) Calendar Days before the date of Bid opening (or as otherwise agreed to by the **Owner**), the **Owner** will provide access to the site, when and as designated by the **Owner**, to allow that Bidder to conduct those reasonable explorations and tests that Bidder considers necessary for preparation and submission of the Bidder's Bid. Any such explorations and/or tests conducted by that Bidder shall comply with the requirements of the **Owner**, any Public Utilities involved and any Political Subdivisions with jurisdiction. If access to the site is granted, that Bidder shall fill all holes and clean up and restore the site to its former

condition, to the **Owner's** satisfaction, upon completion of those explorations and/or tests.

3.9. The Bidder awarded the Contract shall be responsible for obtaining any lands, areas, properties, facilities, rights-of-way, and easements, in addition to those furnished by the **Owner**, that the Bidder considers necessary for temporary facilities, storage, disposal of spoil or waste material or any other similar purpose. Neither the **Owner** nor **Professional** assumes any responsibility for site conditions at any lands, areas, properties, facilities, rights-of-way, and easements obtained by any Bidder.

*3.10. With respect to any earth disturbance associated with this Contract, the Bidder awarded the Contract shall comply with The Natural Resources and Environmental Protection Act; Soil Erosion and Sedimentation Control, 1994 PA 451 Part 91, as amended, MCL 324.9101 et seq. **State Facilities Administration** is the designated "Authorized Public Agency" under the provisions of Section 9110 of 1994 PA 451, Part 91 as amended.

3.11. Each Bid shall include and be deemed to have included all (a) Michigan sales and use taxes and other similar taxes applicable to the Work that are required by Law as of the date of Bid opening, and (b) the cost of all permits, approvals, licenses, and fees necessary for the commencement, prosecution, and completion of the Work. Section 00700 General Conditions contain provisions concerning responsibilities of the Bidder for sales and use taxes and other similar taxes and for obtaining permits, approvals, licenses, and fees applicable to the Work.

3.12. To the extent the **Owner** or **Professional** has knowledge of other work at the site, which may be ongoing during the period allowed for the Work, the Bidding Documents shall identify such other work. Before submitting a Bid, each Bidder shall evaluate: (a) the effect that any such other work operations (e.g., dewatering, blasting, etc.) may have on the Work, (b) related conditions and sequences of Work contained in the Bidding Documents, (c) the requirements for coordination and cooperation between the Work and other work, and (d) related Contract Times.

3.13. The submission of a Bid constitutes a binding representation by the Bidder that: (a) the Bidder has complied with every requirement of this Article and the Bidding Documents; (b) the Bidder has examined and agrees with the Progress Schedule requirements contained in the Specifications, including, but not limited to, requirements concerning the administration of early completion schedules; (c) without exception, the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and in accordance with those Means and Methods indicated in or required by the Bidding Documents; and (d) the Bidder considers the Bidding Documents to be sufficient in scope and detail to indicate a clear understanding of all terms and reasonably foreseeable conditions applicable to the Work, and how such terms and conditions may affect the cost, schedule, progress, performance and furnishing of the Work.

3.14. Any failure of a Bidder to take the actions described and acknowledged in this Article will not relieve that Bidder of the responsibility for (a) properly estimating the difficulty, cost of and schedule for successfully performing and furnishing the Work, or (b) upon award, performing and furnishing the Work successfully at no increase in Contract Price or Contract Time.

3.15. Neither the **Owner** nor **Professional** assumes any responsibility for any conclusions or interpretations made by any Bidder based on the information made available by the Bidding Documents. Nor does the **Owner** or **Professional** assume any responsibility for any understanding reached or representation made about conditions that may in any way affect cost, schedule, progress, furnishing or performance of the Work, unless that understanding, or representation is expressly stated or indicated in the Bidding Documents (including written Addenda).

## ARTICLE 4 INTERPRETATIONS; ADDENDA

4.1. All requests for clarification or interpretation of the Bidding Documents, all proposals for any modifications to the Bidding Documents, all requests for information and all other questions or inquiries about the Bidding Documents and/or the Work shall be submitted in writing to the Contact Person identified in Section 00030 Advertisement, Article 8. Requests or inquiries received less than seven (7) Calendar Days before the date of Bid opening will be answered only if (a) the response can be given through Addenda made available at least seventy-two (72) hours before Bid opening (counting Business Days only), (b) the Bid opening is postponed by Addendum, or (c) the Work is rebid without readvertising following the issuance of post-Bid Addenda.

4.2. Any interpretation or clarification, modification to the Bidding Documents (whether by correction, addition, deletion, or other revision) and/or information given will be binding only if given by Addenda. Interpretations, clarifications, corrections, additions, deletions or other revisions or information given orally or in any other manner are not binding on the **Owner** and if relied upon by any Bidder, shall be relied upon at the Bidder's own risk. Addenda will be provided by posting to and may be obtained by bidders at: https://sigma.michigan.gov/PRDVSS1X1/Advantage4

4.3. In the **Owner's** sole discretion, subsequent to the opening of Bids, post-Bid Addenda may be issued setting a new date for the receipt and opening of sealed Rebids.

4.4. Any quantities of Unit Price Work given on the Bid Form, whether detailed in the Drawings or Specifications or contingent upon actual conditions, are approximate only, and are to be used solely for comparing Bids and establishing the Contract Price. Neither the **Owner** nor **Professional** represents that the actual quantity for any item of Unit Price Work performed will equal the quantity given. Payments will be made only for actual quantities of Unit Price Work completed in accordance with the Contract Documents. Actual quantities of Unit Price Work may overrun or underrun those in the Bid Form without necessarily invalidating the unit prices bid (except as provided in paragraph 10.6 of Section 00700 General Conditions).

## ARTICLE 5 BID SECURITY

5.1. Bid Security shall be made payable to the "State of Michigan" in the form of a certified or cashier's check or money

order drawn upon a bank insured by an agency of the Federal Government or consist of a duly executed Bid Bond. A Bid Bond shall be duly executed by the Bidder and by a surety authorized to do business in the State by the Department of Energy, Labor and Economic Growth and listed on the current U.S. Department of the Treasury Circular 570. Bidders shall attach a certified copy of Power of Attorney to sign Bid Bonds as the Attorney-in-Fact. Copies of the current Circular listing of approved bonding/insurance companies and interim changes may be obtained through the Internet web site https://www.fiscal.treasury.gov/fsreports/ref/suretyBnd/c570.htm.

5.2. Failure by a Bidder to enclose with its Bid a certified or cashier's check or money order or a duly executed Bid Bond signed by Bidder and Surety shall disqualify that Bidder from any consideration for the award. *If Bid Security is by check or money order, such certified or cashier's check or money order must be delivered in original copy before the Bid Due Time to:*

State Facilities Administration
Design & Construction Division
3111 W. St. Joseph Street
Lansing, Michigan 48917

*All other Bid information must be submitted via SIGMA as per standard bidding procedure.*

5.3. The Bid Security of the Bidder recommended for award will be retained until that Bidder has fulfilled all the following: (a) submitted Qualification Submittals and required information, (b) executed and delivered Section 00500 Agreement, (c) delivered evidence of insurance, and (d) furnished the required Section 00610 Performance Bond and Section 00620 Payment Bond (including separate certifications). If that Bidder fails to do so when and as specified, the **Director-DCD or his/her designee,** may annul the Notice of Award recommendation, and the Bid Security of that Bidder will be forfeited to the **Owner** as liquidated damages. If the **Owner** incurs any collection costs in the enforcement of the Bid Security requirement, that Bidder and its surety, if any, agree jointly and severally to reimburse the **Owner's** costs of collection, which shall include reasonable fees and charges of attorneys and others, court or hearing costs incurred with or without suit and interest.

5.4. If the Apparent Low Bidder gives a certified or cashier's check or money order as Bid Security, and the **Owner** requests a certification by an acceptable surety stating that the Bidder will furnish the Section 00610 Performance Bond and Section 00620 Payment Bond if awarded the Contract, that Bidder shall furnish such certification within seven (7) Calendar Days after the **Owner's** request.

5.5. The Bid Securities of the Apparent Low Bidder and of any other Bidder remaining in contention for the award will be retained by the **Owner** until the end of the period during which Bids shall remain open, or seven (7) Calendar Days after the **Owner** executes Section 00500 Agreement, whichever last occurs.

## ARTICLE 6 CONTRACT TIME; LIQUIDATED DAMAGES

6.1. The Contract Times, i.e., the number of Calendar Days within, or dates by, which the Work or any part of the Work shall be completed, are specified in Section 00500 Agreement, and may be supplemented, as provided in Section 00500 Agreement. As stated in Section 00500 Agreement, the Contract Times are of the essence of the Contract. If any Bidder believes that any of the Contract Times are insufficient or excessive, that Bidder shall advise the **Owner** in accordance with the requirements of Article 4.

6.2. Liquidated damages are specified in Section 00500 Agreement and may be supplemented, as provided in Section 00500 Agreement.

## ARTICLE 7 MATERIALS AND EQUIPMENT

7.1. Named or Specified Materials and Equipment – Materials and equipment described in the Specifications by naming a brand, make, supplier or manufacturer or by using a specification shall establish a standard and shall be intended to convey function, necessary design features, general style, type, materials of construction, character and quality, serviceability, and other essential characteristics. A number of Specifications, if any, using named or specified materials and equipment are *listed* in Schedule 1.6 of Section 00440 Schedule of Materials and Equipment.

7.2. Proposal for Adding Products by Addenda – For those Specifications *listed* in paragraph 1.6 in Section 00440 Schedule of Materials and Equipment, the **Professional** will, up to ten (10) Calendar Days before the date of Bid opening stated in Section 00030 Advertisement, accept written proposals from non-named manufacturers and suppliers seeking to have the **Professional** add their products to Schedule 1.6. The **Professional** will consent to any such proposal by Addendum if, in the **Professional's** judgment, the proposed material or equipment also may be used as a named or specified product. Lack of adequate time or information needed to evaluate a proposal, as determined in the sole discretion of the **Professional**, may justify its rejection.

7.2.1. Any such proposal shall clearly identify differences between the proposed and named or specified material or equipment and demonstrate objectively that the proposed material or equipment: (a) has the same essential characteristics of the item named or specified, (b) will equally perform the functions and achieve the results called for by the general design concept, (c) is suited to the same use as the item named or specified, (d) is at least of equal materials of construction, quality and necessary essential design features to the material or equipment named or specified, (e) conforms substantially to the desired detailed requirements, including, but not limited to durability, strength, appearance and aesthetics (if aesthetics are significant), safety, service, life, reliability, economy of operation and ease of maintenance, and (f) offers a proven record of performance and service for at least three (3) years before the date of Bid opening.

7.2.2. Any such proposal shall further include (a) a list of installations that have been in service for at least three (3) years before the date of Bid opening (including the name, address, and telephone number of a person familiar with and at the installation), and (b) sufficient drawings, diagrams, brochures, schedules, performance charts, instructions, samples, and other data as may be necessary to allow the **Professional** to make a determination.

7.3. Each Bidder is responsible for notifying the **Professional** in writing if the Bidder knows or has reason to know that any material or equipment *listed* in Section 00440 Schedule of Materials and Equipment, which the Bidder intends to bid requires changes in the Work. Any such notice shall be provided no later than seven (7) Calendar Days before Bid opening. This requirement applies but is not limited to changes in any testing requirements or Means and Methods indicated in or required by the Bidding Documents. However, this requirement is not intended to make the Bidder responsible for correcting design errors or omissions.

7.3.1. If any Bidder fails to provide such notice, and is awarded the Contract, that Bidder assumes responsibility for its proportionate share of any *excess* costs and Delay. *Excess* costs and Delay are those resulting from changes in the Work that would not have been incurred had that Bidder not failed to provide written notice to the **Professional.**

7.4. Bidding Requirement – For those Specifications *listed* in paragraph 1.6 of Section 00440 Schedule of Materials and Equipment, each Bidder shall bid one of the *listed* materials and equipment only. This requirement to not bid "or equal" or substitute materials and/or equipment for the *listed* Specifications applies even if the Bidding Documents state that an "or equal" or substitute may be furnished or used for any *listed* Specification.

7.5. Contract Condition – For those Specifications *listed* in paragraph 1.6 of Section 00440 Schedule of Materials and Equipment, the Contract will be awarded on the basis that only *listed* named or specified materials and equipment will be furnished. If an "or equal" or a substitute may be furnished for any *listed* Specification, if acceptable to the **Professional**, application for acceptance will not be considered until after Contract Award.

7.6. Section 00700 General Conditions contains provisions requiring each Supplier (a) to be bound to the requirements of the Contract Documents, (b) to assume toward the **Contractor** all obligations that the **Contractor** assumes toward the **Owner** and **Professional,** and (c) to furnish Work under a Sub-agreement containing waiver of rights of subrogation provisions.

## ARTICLE 8 SUBCONTRACTORS

8.1. For each Division, Section of the Specifications and/or trade itemized in Section 00430 List of Subcontractors, the Apparent Low Bidder shall, when requested by the **Professional**, nominate the Subcontractor(s) to be awarded a Sub-agreement(s). When completing Section 00430, the Apparent Low Bidder shall provide licensing data for trades for which contractors' licensing is required and, if applicable, indicate minority, woman, or handicapped status. One Subcontractor shall be nominated for each Specification or trade, unless the Apparent Low Bidder, directly or through a Subcontractor, intends to award more than one Sub-agreement for the listed Specification or trade.

8.2. If the **Owner** objects, for good cause, to any nominated Subcontractor, the **Owner**, before issuing the Notice of Award, may request replacement of that Subcontractor. In that event, the Apparent Low Bidder shall nominate a substitute Subcontractor or the Bidder itself, if qualified for the Work involved. In such case, there will be no extension in the Bid hold period nor any increase in the Bidder's Bid or Alternates. If the Bidder declines, that Bidder shall not be recommended for the award; however, such declining will not constitute grounds for forfeiting the Bidder's Bid Security.

8.3. Except as provided in paragraph 8.2, no removal or replacement of a nominated Subcontractor will be considered by the **Owner**, except for good cause. Before Contract Award, any removal, replacement, or addition of a nominated Subcontractor shall be responsive to the requirements of the Bidding Documents only to the extent it permits the timely evaluation of the newly nominated Subcontractor. After Contract Award, if the Apparent Low Bidder, as the **Contractor**, nominates *for the first time* a Subcontractor for any Division, Specification and/or trade listed in Section 00430 List of Subcontractors, and the **Owner** objects for good cause to any such newly nominated Subcontractor, the **Contractor** shall provide a replacement Subcontractor at no increase in Contract Price and/or Contract Time.

8.4. Section 00700 General Conditions contains provisions requiring each Subcontractor (a) to be bound to the requirements of the Contract Documents, (b) to assume toward the **Contractor** all obligations that the **Contractor** assumes toward the **Owner** and **Professional,** and (c) to provide Work under a Sub-agreement containing waiver of rights of subrogation provisions.

8.5. These provisions shall not be construed to create any third-party beneficiary or joint employer status with respect to the **Owner** and/or **Professional** and any Subcontractor. Furthermore, these provisions shall not be construed to create or impose any duty or liability on the **Owner** to exercise this authority for the benefit of any Bidder, nominated or newly nominated Subcontractor or any other third party.

## ARTICLE 9 BID FORM AND BID FORM ATTACHMENTS

9.1. All bid forms should be uploaded as attachments to SIGMA, including the Section 00300 Bid Summary, Section 00300 Bid Form and Bid Form Attachments (Section 00310 Bid Bond Form and Section 00320 Non-collusion Affidavit. If any forms are revised by Addendum, the latest revision of the appropriate Bid Summary, Bid Form and/or Bid Form Attachment shall be used. All blank spaces shall be legibly and properly printed in ink or typed as required in these Instructions to Bidders and each form. All Bid prices shall be printed or typed in both words and figures.

9.2. Bids by individuals shall be signed by the person making that Bid, or the Bid shall enclose a Power of Attorney evidencing authority to sign the Bid in the individual's name.

9.3. Bids by partnerships shall be signed in the name of the partnership. The partner authorized to sign shall be named and sign where indicated. A certified copy of power of attorney authorizing that partner to bind all partners shall be attached to Section 00300 Bid Form. If a certified copy of the partnership's certificate attached to Section 00300 Bid Form indicates that all partners have signed, no separate authorization is required.

9.4. Bids by corporations shall be signed in the legal corporate name. The signature of the president or authorized officer shall be entered below the corporate name, followed by the attesting signature of the corporation secretary or of an authorized officer other than the officer signing the Bid. A certified copy of a pertinent Board Resolution authorizing that individual to bind the corporation shall be attached to Section 00300 Bid Form.

9.5. Bids by joint ventures shall be signed by all or one of the joint venturers. If not all joint venturers sign, a certified copy of Power of Attorney authorizing the individual(s) signing to bind all joint venturers shall be attached to Section 00300 Bid Form. If a certified copy of the joint venturer's certificate attached to Section 00300 Bid Form indicates that all joint venturers have signed, no separate authorization is required.

9.6. The Bidder shall acknowledge receipt of all Addenda by completing the blank spaces in the table provided for that purpose in paragraph 2.1 of Section 00300 Bid Form.

## ARTICLE 10 PREPARATION AND SUBMISSION OF BIDS

10.1. **Left Blank Intentionally**

10.2. **Bids must be submitted electronically through the SIGMA VSS website at https://sigma.michigan.gov/PRDVSS1X1/Advantage4**

10.3. Each bid requesting the Qualified Disabled Veterans (QDV) preference, in accordance with Public Act 22 of 2010, MCL 18.1241(3), shall include a DD 214 Proof of Service and Discharge, a Veterans Administration rating decision letter, proof of disability (if the disability is not indicated on the DD 214), and appropriate legal documents setting forth the 51% natural persons QDV ownership.

10.4. If Unit Price Work is specified, the Bidder shall, for each Unit Price Work item listed separately on Article 6 of Section 00300 Bid Form, bid a unit price, and enter, in the appropriate column, the computation of the respective quantity multiplied by the respective Bidder's bid unit price. Bid prices for each lump sum or "One Each" item listed on the Bid Form shall be printed or typed only in the appropriate "Bid Price" column. The Bidder shall show the sum representing the Bidder's Base Bid and, if Alternates are listed, the Bid prices for all Alternates, in the spaces provided for those purposes.

10.5. For each Cash Allowance, the Bidder shall include, within the Bid, all labor costs, construction equipment costs, insurance and Bond premiums and other general conditions costs and Fee (Bidder's and Subcontractors') to complete Work associated with the material, equipment, or other designated item to be furnished under the Cash Allowance. For each Provisionary/Contingency Allowance, the Bidder shall include, within the Bid, insurance premiums (not recoverable as labor burden) and Bond premiums required to complete Work that may be ordered under the Provisionary/Contingency Allowance. Cash Allowances and Provisionary/Contingency Allowances are defined in Section 00020 Glossary and are further described in paragraph 10.7 of Section 00700 General Conditions.

10.6. The Bidder's Base Bid and Alternate Bid prices shall include, and payment for completed Work shall be compensation in full for, all services, obligations, responsibilities, management, supervision, labor, materials, devices, equipment, construction equipment, general conditions, permits, patent fees and royalties, testing, inspection and approval responsibilities, warranties, temporary facilities, small tools, supplies, Bonds, insurance, taxes, mobilization, close-out, overhead and profit and all connections, appurtenances and any other incidental items of any kind or nature, as are necessary to complete the Work, in a neat, first quality, workmanlike and satisfactory manner in accordance with the Drawings and Specifications and as otherwise required to fulfill the requirements of the Bidding Documents.

10.7. Neither the Section 00300 Bid Form nor any Bid Form Attachment made available to the Bidders and submitted with the Bid shall be altered in any way. Bids shall not contain any qualifications or conditions or any recapitulations of the Work whatsoever. No Alternate will be considered, unless any such Alternate is itemized in paragraph 6.2 Schedule of Alternates in Section 00300 Bid Form and specified in the Bidding Documents.

10.8. Before and after Bid submission, and before the time for receiving Bids has expired, any Bidder may alter or revise any price or information the Bidder has entered on its Bid Form or any Bid Form Attachments by: (a) crossing out the entry, (b) legibly printing in ink or typing the new price or information, and (c) placing the initials of the person who signs the Bid adjacent to each change. After Bid opening, the **Owner** may require a Bidder to verify any such alteration or revision. Ambiguities arising from any alterations or revisions made by any Bidder may be resolved against that Bidder, in the **Owner's** sole discretion.

10.9. Neither the **Owner** nor **Professional** assumes any responsibility for any costs any Bidder incurs, however caused, in preparing and submitting its Bid, in withdrawing its Bid, or in objecting to the award or to being disqualified for the award.

10.10. In the event of any conflict between Attachment A to Section 00100–Bidder's Checklist and any requirements specified in any other parts of the Bidding Documents; the requirements of the Bidding Documents taken as a whole shall be binding on the Bidders.

10.11. All bonds, insurance, and other required documents shall be issued in the name of the bidder.

## ARTICLE 11 BID WITHDRAWAL

11.1. Any Bidder may withdraw its Bid before Bid opening by submitting to the **Owner** a document requesting the withdrawal in the manner in which a Bid shall be signed and submitted to the **Owner**. Withdrawal of a Bid before Bid opening will not prejudice the right of that Bidder to submit a new, modified Bid. After the time for receiving Bids has expired, the following will apply: (a) no Bid may be modified, altered, or reformed, except to resolve irregularities on the Bid Form or Bid Form Attachments, as provided in paragraph 14.6,

and (b) no Bid withdrawal will be accepted by the **Owner**, except as provided in paragraphs 11.2 through 11.6.

11.2. After the time for receiving Bids has expired, no Bid may be withdrawn, unless that Bidder lodges a written claim of a mathematical or clerical error in the Bidder's Bid with the **Owner** within two (2) Business Days after the date of Bid opening. The claim shall describe in detail the mathematical or clerical error, include a signed affidavit stating the facts of the alleged error and request that the Bidder be released from the Bidder's Bid.

11.3. If any Bidder's claim to withdraw its Bid due to an alleged mathematical or clerical error is timely filed, the **Director-DCD**, or his/her designee, will determine the validity of the claim and, as he/she deems necessary within his/her sole discretion, will provide an opportunity to the Bidder making the withdrawal to present its verification claim at a hearing/review session within ten (10) Calendar Days after the **Owner** received the claim.

11.4. At the Bid withdrawal claim review, the **Director-DCD**, or his/her designee shall, within his/her discretion, informally hear testimony and receive evidence as to whether (a) the Bid contains an obvious mathematical or clerical error not involving lack of good faith or fair dealing, (b) the error is subject to objective certification and is of such grave consequences that to enforce the Contract would be unconscionable, (c) the error relates to a material feature of the Contract, and (d) the error was not caused in any way by the Bidder's violation of positive legal duty or culpable negligence.

11.5. Upon completion of the claim review process and before any award recommendation, the **Director-DCD**, or his/her designee, will enter findings and render a determination on the Bidder's withdrawal claim. The **Owner** will notify the Bidder within a reasonable time after such determination.

11.6. If the **Director-DCD**, or his/her designee, concurs with the Bid withdrawal claim and the **Owner** suffers no serious prejudice, except loss of bargain, the **Owner** will allow the Bidder to withdraw its Bid will return the Bidder's Bid Security within a reasonable time. However, that Bidder will not be allowed to submit another Bid for the Work. The decision of the **Director-DCD**, or his/her designee, shall be final and binding on any such Bidder.

## ARTICLE 12 BID OPENING; OBJECTION TO THE AWARD

12.1. Each Bidder bears sole responsibility **to submit their bid electronically through the SIGMA VSS website at https://sigma.michigan.gov/PRDVSS1X1/Advantage4**

12.2. Within reasonable time after the date of Bid opening, the **Owner** will make available a “Bid tabulation” listing the Bids opened and the Apparent Low Bidder. If any Bidder listed in the Bid tabulation has any objection to the Apparent Low Bidder, the objecting Bidder shall file a written protest with the **Owner** within seven (7) Calendar Days after the date of Bid opening. The protest shall describe in detail the basis for the protest and request a determination under this Article.

12.3. If a written protest is timely filed, the **Director-DCD**, or his/her designee, will review the protest and if he/she determines in his/her sole discretion that a claim review process is necessary, such proceeding shall be conducted within ten (10) Calendar Days after receipt of the written protest.

12.4. The **Owner** will notify the Bidders involved within a reasonable time of the **Director-DCD's**, or his/her designee’s, recommendation to dismiss or uphold the protest. If the protest has been denied, the **Owner** will notify those Bidders of the time and date on which the **Board's** Building Committee will meet to consider the **Director-DCD's**, or his/her designee’s recommendation of award. The objecting Bidder and the Apparent Low Bidder will be given an opportunity to be heard at the Building Committee meeting and, at the discretion of the **Board**, at any subsequent **Board** meetings. The Building Committee and **Board**, at its discretion, will review or hear the protest under such terms and conditions as either deems proper.

12.5. Upon reviewing the protest, the Building Committee and/or the **Board** will either (a) dismiss the protest, or (b) uphold the protest and send the Bid back to the **Director-DCD**, or his/her designee, for a new Bid evaluation or rebid, consistent with the determination of the Building Committee or **Board's** findings. The decision of **Board** as to the protest shall be final and binding.

## ARTICLE 13 BIDS TO REMAIN OPEN

13.1. Bids shall remain open for acceptance by the **Owner** for no less than the period during which Bids shall remain valid (i.e., the Bid hold period) stated in Section 00030 Advertisement.

13.2. The **Owner**, by written notice, may elect to request the Apparent Low Bidder and any other Bidder remaining or wishing to remain in contention for the award to hold their Bids beyond the Bid hold period. Any such Bidder who fails or refuses to agree to the **Owner**-requested extension may be disqualified for further consideration for the award. However, no such Bidder shall forfeit the Bidder’s Bid Security due to its failure or refusal to hold its Bid.

13.3. Any such Bid hold extension request by the **Owner** and consent by any Bidder shall be based upon no increase in (a) the Bidder's Base Bid, (b) any of the Bidder’s Alternate Bid Prices, and (c) any Contract Times stated in Calendar Days. However, in the event none of the Bidders involved consent to extending their Bids, as conditioned in this paragraph, the **Owner** will issue a post-Bid Addendum specifying an additional Alternate for the sought extension in the Bid hold period.

## ARTICLE 14 AWARD OF THE CONTRACT

14.1 If the Owner elects to award the Contract, the Owner will make the award to the responsive and responsible best value bidder except as provided below relative to veteran’s preference.

14.1.1 The Apparent Low Bidders will be evaluated for responsiveness and responsibility based on the following:

- Compliance with the bid specifications and requirements.
- The Bidder's financial resources.
- The Bidder's technical capabilities.
- The Bidder's technical experience.
- The Bidder's past performance.
- The Bidder's insurance and bonding capacity.
- The Bidder's business integrity.

If a qualified disabled veteran meets the requirements of the contract solicitation, provides acceptable responses to both Part One and Part Two of the Best Value Construction Bidder Evaluation to achieve a Best Value recommendation and with the veteran's preference is the lowest responsive, responsible, best value Bidder the Owner will award the contract to the qualified disabled veteran bidder.

A determination as to whether the requirements of the bid solicitation have been met will be based solely on the Owner's and Professional's evaluation of the Section 00300 Bid Form, Bid Form Attachments, Bidder-provided documents, Best Value Evaluation by the PSC, interview, and Bidder Qualification Submittals received in a timely basis. Each bid requesting the Qualified Disabled Veterans (QDV) preference, in accordance with Public Act 22 of 2010, MCL 18.1241.3 shall include a DD 214 Proof of Service and Discharge, a Veterans Administration rating decision letter, proof of disability (if the disability is not indicated on the DD 214), and appropriate legal documents setting forth the 51% natural persons QDV ownership.

The bids will be evaluated for best value based on price and qualitative components by comparing the qualitative components of the three lowest responsive and responsible Bidders. The comparison may also include other Bidders whose bids are within 10% of the lowest responsive and responsible Bidder. Determination of the lowest three Bidders shall be based on the sum of the Base Bid and any additive and deductive Alternates the Owner accepts. Alternates shall be accepted in the order listed in paragraph 6.2 Schedule of Alternates in Section 00300 Bid Form only. The Owner will accept an Alternate only if all other previously listed Alternates are also accepted unless acceptance by the Owner of Alternates in a different order does not affect determination of the lowest three bidders in any way.

Some qualitative components that may be evaluated are:

- Technical approach.
- Quality of proposed personnel.
- Management plans.
- ADD ANY OTHER PROJECT SPECIFIC

For contracts under $250,000, best value will primarily be based on the lowest responsive and responsible bid.

14.1.2. For determining the lowest, responsive, and responsible bid, when a Qualified Disabled Veterans (QDV) preference is requested, 10% of the lowest responsive and responsible bid (the bid that would otherwise receive the contract award if the preference were not being considered) will be deducted from all QDV bids. If the low responsive and responsible QDV bid, less the 10% preference, is less than the lowest responsive and responsible bid, then the QDV bid will be declared the official lowest responsive and responsible bid. The original QDV bid amount will be the basis of the contract award.

14.1.3. Bid irregularities with respect to the Bidding Documents, for which corrective action is not already provided in paragraph 14.6 or elsewhere in the Bidding Documents, may be waived at the sole discretion of the **Owner**, unless the irregularity was due to the Bidder's lack of good faith or fair dealing, or where the waiver would lead to a determination obviously in error or inconsistent with the Bidding Documents.

14.1.4. For Bids over $100,000.00, Bidders that self-certify to be a Michigan business shall be given a preference over an out of state Bidder in the same manner in which an out-of-state Bidder would be preferred in its home state. Bidders that neither self-certify as a Michigan business in their Bid nor authorize the Michigan Department of Treasury to release information necessary to verify entitlement will be deemed to have waived their right to claim entitlement to any preference.

14.2. No Bidder shall be considered responsible under the requirements of the Bidding Documents, unless that Bidder delivers the information required in paragraph 2.1 that the **Owner** considers necessary to the evaluation of the Bid.

14.3. The following may be considered examples of sufficient grounds for determining that a Bidder is not responsible, or for objecting to any of the Bidder's Subcontractors (even if holding a valid license) or Suppliers: *(a) being listed on the Michigan Department of Labor's register of employers who have been found in contempt of court by a Federal Court of Appeals for failure to correct an unfair labor practice as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U.S.C. 158 (1980 PA No. 278, as amended, MCL 423.321 et seq.); *(b) being debarred from participation in the bid process pursuant to Section 264 of 1984 PA 431, as amended, MCL 18.1264, or debarred or suspended from consideration for award of contracts by any other State or any federal Agency; (c) a felony conviction in any state (including this State) within the last three (3) years before the date of Bid opening; (d) lack of adequate experience or demonstrated qualifications or capability to perform the trades or classifications of the Work specified in the Bidding Documents; (e) reasonable doubt concerning the ability to maintain adequate construction equipment, quality control, schedule control or financing to meet contractual obligations under the Bidding Documents; (f) a previous termination for cause by the **Owner** within the last five (5) years before Bid opening; (g) failure to comply with all requirements for foreign corporations; (h) concealment, misrepresentation or misstatement of any material facts; or (i) failure to pay any federal, State or local taxes.

14.4 If the Owner, either through the Director-DCD or his/her designee, or the Board, intends to disqualify any Bidder under consideration for award, written notice of the impending disqualification will be provided by the Owner (including reasons for the disqualification) to that Bidder and those Bidders remaining under consideration to the award. If the disqualified Bidder has any objection to the disqualification that Bidder shall, within two (2) Business Days, file a written protest, as provided in paragraph 12.2, and follow the protest

procedures in paragraphs 12.3 through 12.5. The decision of the Board shall be final and binding on the disqualified Bidder.

14.5. Except in circumstances leading to a determination obviously in error or inconsistent with the Bidding Documents, irregularities on any Bid shall be resolved using the rules provided in paragraph 14.6. Except as stated in paragraph 14.6(e), any Bid Form and Bid Form Attachment having any such irregularity shall be modified, altered, or revised to reflect the resolution of the irregularity, however, no Bidder-provided sum or extension shall be modified, altered, or revised and the Bidder's Bid shall be binding on the Bidder and the Bidder's surety, subject to the provisions governing Bid withdrawals stipulated in Article 11.

14.6. The following irregularities on any Bid Form or Bid Form Attachment shall be resolved as follows: (a) between SIGMA entry and signed Bid Summary attachment, the signed Bid Summary attachment will be used; (b) between words and figures, the words shall be used; (c) between any sum, computed by the Bidder, and the correct sum, the sum computed by the Bidder shall be used; (d) between the product, computed by the Bidder, of any quantity and bid unit price and the correct product of the unit price and the quantity of Unit Price Work, the product extended by the Bidder shall be used; (e) between a stipulated Allowance and the amount entered, the Allowance shall be used; (f) any mobilization pay item exceeding the maximum specified shall be ignored and the Bid shall remain unchanged; (g) if any Bidder fails or neglects to bid a unit price for an item of Unit Price Work but shows a "Bid Price" for that item, the missing unit price shall be computed from the respective quantity and the Bid Price shown; (h) if any Bidder fails or neglects to show a "Bid Price" for an item of Unit Price Work but bids a unit price, the missing Bid Price shall remain as “zero”; and (i) if any Bidder fails or neglects to enter a Bid price in both words and figures, the Bid price printed or typed, whether in words or figures, shall be used.

14.7. If there are reasonable grounds for believing that collusion or unlawful agreements exist between any Bidders, that a Bidder is interested in more than one Bid, or that any Bids are not genuine, those Bidders will be disqualified, and their Bids will be rejected without consideration.

14.8. All costs of the Bidder awarded the Contract and that are incurred in responding to requests from the **Owner** or **Professional**, whether or not sufficient, shall neither justify any increase in Contract Price or Contract Time nor provide any basis for subsequent consideration by the **Owner** of a proposal or claim for any increase in Contract Price or Contract Time.

*14.9. Michigan and Recycled Products – The Bidder awarded the Contract and all Subcontractors and Suppliers shall use (a) Michigan-made products whenever possible where price, quality and performance are equal to or better than non-Michigan products, and (b) supplies, materials and equipment made from Recycled Materials if there is a readily identifiable source or market as determined by the **Director-DCD, or his/her designee,** and the cost does not exceed one hundred ten percent (110%) of supplies, materials or equipment not containing Recycled Materials (Sections 261 and 261a of the Management and Budget Act, 1984 PA 431, as amended, MCL 18.1261 and MCL 18.1261a).

*14.10. Subcontractor and Supplier Businesses Owned by Minorities, Women and Persons with Physical or Mental Disabilities – Bidders are urged to utilize as Subcontractors and Suppliers, businesses owned by minorities, women, and persons with physical or mental disabilities. For assistance in locating and identifying certified businesses, contact the Michigan Department of Civil Rights, Business and Community Affairs, Cadillac Place, 3054 W. Grand Boulevard, Suite 3-600, Detroit, MI 48202, 1-800-482-3604.

*14.11. Unfair Labor Practice - Bidders who have been found in contempt of court by a Federal Court of Appeals on not less than three occasions involving different violations during the preceding seven (7) years for failure to correct an unfair labor practice prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U.S.C. 158 are not eligible to be awarded the Contract. A register of employers in violation of this requirement is compiled by the Michigan Department of Energy, Labor and Economic Growth pursuant to 1980 PA 278, MCL 423.321 et seq. Further, the Bidder awarded the Contract shall not use any Subcontractors or Suppliers on the Work whose name appears on the register. According to Section 4 of 1980 PA 278, any contract entered into by the State may be declared void and rescinded to the extent the Bidder awarded the Contract or any Subcontractor, manufacturer, or Supplier awarded Work under the Contract subsequently appears in the register compiled by the Department of Consumer and Industry Services.

*14.12. Nondiscrimination – The Bidder awarded the Contract, and each Subcontractor and Supplier awarded a Sub agreement covenants that it will comply with the nondiscrimination requirements described in paragraphs 7.12.1 through 7.12.3 of Section 00700 General Conditions.

*14.12.1. A breach of the covenants set forth in paragraph 7.12 of Section 00700 General Conditions shall be regarded as a material breach of the Contract.

*14.12.2. The Bidder awarded the Contract shall include or incorporate by reference paragraph 14.12.1 (above) and the provisions of paragraphs 7.12.1 through 7.12.3 of Section 00700 General Conditions in every Sub agreement, unless exempted by rules, regulations, or orders of the Michigan Civil Rights Commission. Each Sub agreement shall provide that those provisions shall be binding upon the Subcontractor or Supplier.

*14.13. Bidders are further directed to Article 7 of Section 00700 General Conditions for terms and conditions concerning the following Michigan legal requirements applicable to this Contract: (a) Laws and permits, paragraph 7.1, (b) taxes, paragraph 7.2, (c) safety and protection, paragraph 7.3, (d) unfair labor practice, paragraph 7.10, (e) Michigan Right-to-Know Law, paragraph 7.11, and (f) Michigan residency for employees, paragraph 7.13.

## ARTICLE 15 EXECUTION OF THE AGREEMENT

15.1. Upon acceptance of a Bid for the Work by the **Board** or by the **Director** of the **Department** of Technology, Management and Budget, the **Director-DCD** or his/her designate will send the Notice of Award to the Bidder awarded the Contract. The Notice of Award will (a) designate the

Contract Price and itemize the Alternates that the **Owner**, in its sole discretion, has accepted, (b) enclose completed, unsigned Section 00500 Agreement forms and blank Section 00610 Performance and Section 00620 Payment Bond forms, and (c) outline the procedures to be followed and information to be provided by the **Contractor** for execution of Section 00500 Agreement.

15.2**.** Unless otherwise designated in the Notice of Award, within fifteen (15) Calendar Days after receipt of the Notice of Award, the Bidder recommended for award shall (a) sign Section 00500 Agreement; (b) execute Section 00610 Performance Bond and Section 00620 Payment Bond (and attach to each Bond separate, certified copy of Power of Attorney); and (c) return to the Owner the executed Section 00500 Agreement, Section 00610 Performance Bond and Section 00620 Payment Bond forms, evidence of original certificates of insurance and any other documents required for submission by the Notice of Award.

15.3. Evidence of insurance shall consist of certificates of insurance confirming that the policies of insurance that the **Contractor** has obtained, including the limits of coverage and endorsements provided, are in compliance with the insurance requirements specified in paragraphs 7.4 through 7.7 of Section 00700 General Conditions. Certificates of insurance shall contain a statement confirming that coverage will not be canceled, adversely changed or renewal refused until at least thirty (30) Calendar Days' prior written notice has been delivered or mailed to the **Owner** and **Contractor**.

15.4. The **Owner** will execute the Section 00500 Agreement retain one hard copy and compile a complete electronic copy of the Contract Documents upon two conditions: (a) receipt of the executed Section 00500 Agreement, Section 00610 Performance Bond and Section 00620 Payment Bond (with each Bond enclosing a separate certified copy of Power of Attorney and a separate certificate of principal) and evidence of insurance; and (b) a determination by the **Owner** that the Section 00610 Performance Bond and Section 00620 Payment Bond, required certifications and evidence of insurance received conform to the requirements of the Contract Documents and are acceptable to the **Owner**.

15.5. Each full set of the executed Contract Documents shall consist of: (a) two (2) or more volumes containing the executed Agreement (conformed Section 00500); executed Performance and Payment Bond and certifications (conformed Section 00610 and Section 00620); the **Contractor's** Bid Form and Non-Collusion Affidavit (conformed Sections 00300 and 00320); and the remainder of the Bidding Documents, including Addenda; and (b) a separate volume with Qualification Submittals submitted by the **Contractor** that the **Owner**, in its sole discretion, chooses to include as part of the Contract Documents. The **Contractor** will receive one full set of the executed Contract Documents.

15.6. Bid prices in the "Schedule of Change Order Prices" on the **Contractor's** Bid Form accepted by the **Owner** upon evaluation of the **Contractor's** Bid will be incorporated into the Contract as provided in paragraph 3.2 of Section 00500 Agreement.

15.7. The Notice to Proceed shall be authorized by the **Director-DCD** or his/her designee. Subject to the provisions of Article 13 and compliance with paragraphs 15.2 through 15.4, the Notice to Proceed shall designate a Date of Commencement of the Contract Time no later than sixty (60) Calendar Days after the date ending the Bid hold period, or thirty (30) Calendar Days after receipt by the **Owner** of the executed Section 00500 Agreement and acceptable, executed Section 00610 Performance Bond and Section 00620 Payment Bond, whichever last occurs, unless otherwise directed in writing by the **Owner**.

15.8. Within fifteen (15) Calendar Days after receiving the Notice to Proceed, the **Contractor** shall submit to the **Owner** any additional Change Order cost and pricing data requested with the Notice to Proceed. The **Contractor's** submittal shall be itemized in a breakdown acceptable to the **Owner**, and shall be certified as accurate, current, and complete by a duly authorized financial representative of the **Contractor**. The **Contractor** shall meet with the **Owner** to review the cost and pricing data submittal. The **Owner** shall incorporate into the Contract Documents any acceptable cost and pricing data by Change Authorization issued within a reasonable time after the Notice to Proceed.

## ARTICLE 16 MOBILIZATION PAY ITEM

16.1. The mobilization pay item, if designated in the Specifications and/or the Bid Schedule in Section 00300 Bid Form, shall be intended to cover, at least in part, up-front costs incurred by the **Contractor** from Contract Award until sixty (60) Calendar Days after the **Contractor** starts the Work. Allowable mobilization items shall be as itemized in the Schedule of Values approved by the **Professional**, and may include costs incurred by the **Contractor** (a) in establishing temporary site offices and other facilities specified in the Specifications, (b) in obtaining permits required to commence the Work, (c) for premiums for the required Section 00610 Performance Bond and Section 00620 Payment Bond, (d) for insurance obtained by the **Contractor** to comply with the requirements of the Contract Documents, and (e) in complying with the Revision 0 Schedule and Cost Submittal requirements.

16.2. Total payments to the **Contractor** under the mobilization pay item shall not exceed four percent (4%) of the Base Bid, unless otherwise expressly provided in the Bidding Documents. If the **Contractor** incurs costs, which the **Contractor** considers within the scope of the mobilization pay item, more than the four percent (4%) limitation, those excess costs will not be reimbursed under the mobilization pay item and will be deemed to have been included in other parts of the **Contractor's** Bid.

16.3. To the extent practicable, the basis of measurement for payment shall be proof of actual payment by the **Contractor**. Where actual payment by the **Contractor** does not apply, as in the case of premiums for the Section 00610 Performance Bond, the Section 00620 Payment Bond and the insurance policies the **Contractor** is required to furnish under the provisions of Article 15, or in connection with the **Contractor** costs to comply with the Revision 0 Progress Schedule and Cost Submittal requirements of the Contract Documents, the basis of measurement for payment shall be

as stipulated in the Schedule of Values approved by the **Professional**. Payments to the **Contractor** shall be based on the requirements of the Bidding Documents, subject to the following:

16.3.1. Approval by the **Professional** of the Schedule of Values (required by paragraph 12.1 of Section 00700 General Conditions) shall be a condition precedent to making any payment under the mobilization pay item. Partial payments shall be based on the breakdown itemized in the Schedule of Values and the extent of completion, as determined by the **Professional**.

16.3.2. Full payment of the amount corresponding to the Revision 0 Schedule and Cost Submittals shall be paid by with the Request for Payment following return to the **Contractor** of the Revision 0 Submittal, or Revision 0A Submittal (i.e., first resubmission), Revision 0B Submittal (i.e., second resubmission), etc. of the Progress Schedule marked "Resubmittal Not Required."

## ARTICLE 17 SOIL EROSION AND SEDIMENTATION CONTROL –FINE FOR NON-COMPLIANCE

17.1. All Work within this Contract must comply with the applicable soil erosion and sedimentation control rules and regulations (Soil Erosion and Sedimentation Control – 1994 PA 451, Part 91, as amended, MCL 324.9101 et seq.) and specific provisions for same within the Contract Documents. Soil erosion and sedimentation control will be monitored and enforced by the Department of Technology, Management and Budget, **State Facilities Administration**.

17.2. Soil erosion and sedimentation control on **Department** Projects will be monitored and enforced by **State Facilities Administration** through the review of **Contractor** implementation plans and site inspections by Soil Erosion and Sedimentation Control Unit personnel and/or **State Facilities Administration** Representative.

17.2.1. In the event, the **Owner** determines through site inspections by the **State Facilities Administration** Representative or by notification by regulatory authorities that the **Contractor** has not met the soil erosion requirements of the Project and/or is in violation of the applicable soil erosion and sedimentation control statutes, the **Contractor** shall be notified in writing and stop work orders may be issued by **State Facilities Administration** in conjunction with paragraph 2.3 of Section 00700 General Conditions.

17.3. In the event, the **Owner** determines through site inspections by the **State Facilities Administration** Representative or by notification by regulatory authorities that the **Contractor** has not met the soil erosion requirements of the Project and/or is in violation of the applicable soil erosion and sedimentation control statutes, the **Contractor** shall be notified in writing and corrective actions undertaken by **State Facilities Administration** in conjunction with paragraph 9.4 of Section 00700 General Conditions.

17.4. In the event, the **Contractor** fails to respond to written notice from **State Facilities Administration** regarding noncompliance with the provisions of the Contract Documents and/or soil erosion and sedimentation control regulations applicable to this Work, **State Facilities Administration** has the right to assess a fine to the **Contractor**. Fines shall be in addition to any other remediation costs or liquidated damages applicable to the Project and may exceed the value of the Contract.

**END OF SECTION 00100**

## ATTACHMENT A TO SECTION 00100 – BIDDER'S CHECK LIST

**PROFESSIONAL** – NTH Consultants, Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. – 591

FILE No. – 22274.MNB

**BEFORE BID OPENING:**

–3/10/2025 Due date for delivery to the **Professional** of written proposals seeking to have the **Professional** consent to naming additional materials or equipment by Addenda. (Reference: Section 00100, Paragraph 7.2).

–3/10/2025 Bidder inquiries received after this date will not be answered, unless answered through Addenda issued at least seventy-two (72) hours before Bid opening (Business Days only), the Bid opening is postponed by Addendum, or the Work is rebid following post-Bid Addenda. (Reference: Section 00100, paragraph 4.1).

**CONTENTS SHALL BE UPLOADED AS A PDF DOCUMENT TO/THROUGH SIGMA VSS (ITEMS 1 THROUGH 5.3 BELOW):**

**NOTE 1: THE BIDDER SHALL USE THE BID SUMMARY, BID FORM AND BID FORM ATTACHMENTS INCLUDED WITH THE BIDDING DOCUMENTS, UNLESS REVISED BY ADDENDUM, IN WHICH CASE THE LATEST REVISION OF THE BID SUMMARY, BID FORM AND/OR BID FORM ATTACHMENTS ISSUED BY ADDENDUM SHALL BE USED.**

**NOTE 2: THE BIDDER IS NOT REQUIRED TO INCLUDE THE PROJECT MANUAL OR DRAWINGS IN THE PDF BID DOCUMENT PACKAGE UPLOADED TO SIGMA VSS, ONLY THE COMPLETED BID SUMMARY, BID FORM AND BID FORM ATTACHMENTS!**

☐ 1. Completed Bid Summary provided with Section 00300 Bid Form.

☐ 2. Completed Section 00300 Bid Form, which requires (a) completing the acknowledgment of Addenda in paragraph 2.1, (b) filling out Article 6 Bid Schedule and, if any prices are designated, completing Article 7 Change Order Prices, and (c) completing Article 8, that is, entering the date the Bid is submitted, completing paragraphs 8.1 through 8.4, and, if the Bidder is a joint venture, paragraph 8.5, and signing, as appropriate, in the spaces provided.

☐ 2.1 Completed Certificate of Principal or other equivalent acceptable certificate or authorization document, which certificate shall be attached to the completed Section 00300 Bid Form.

☐ 3. If the Bid includes a Bid Bond, ensure that the surety is authorized to do business in the State by the Department of Licensing and Regulatory Affairs – Insurance Bureau and is listed on the current U.S. Department of the Treasury Circular 570. Also, ensure that the completed Section 00310 Bid Bond is dated, is signed by both the Bidder and surety, and attaches Power of Attorney. If the Bid includes a certified or cashier's check or money order, that check, or money order shall be delivered in original copy before the Bid Due Time to:

State Facilities Administration
Design & Construction Division
3111 W. St. Joseph Street
Lansing, Michigan 48917

*All other Bid information must be submitted via SIGMA as per standard bidding procedure.*

☐ 4. Completed Section 00320 Non-collusion Affidavit.

☐ 5. Qualified Disabled Veterans Preference Documentation (if preference requested).

☐ 5.1 DD 214 – Proof of Service/Discharge.

☐ 5.2 Veterans Administration Rating Decision Letter – Proof of Disability, if not indicated in the DD 214.

☐ 5.3 Legal Proof of 51% QDV Ownership

☐ 5.4 Byrd Anti-Lobbying Certification (Only when Federal Provisions Addendum is included)

This Bidder's Check List is provided solely to aid the Bidder in submitting a Bid. It shall not be relied on to include all items necessary to insure a complete Bid. The Bidder is solely responsible for including all items as required by the Bidding Documents, including any items required by Addenda, which may not be listed in this Bidder's Check List.

**END OF ATTACHMENT A TO SECTION 00100**

**SECTION 00120 – SUPPLEMENTARY INSTRUCTIONS**

**PROFESSIONAL** – NTH Consultants
WORK – MDOT Detroit Garage Storm Sewer Reconstruction
FILE No. – 591/22274.MNB

The provisions of this Section 00120 Supplementary Instructions amend or supplement Section 00100 Instructions to Bidders and those other provisions of the Bidding Requirements that are indicated below. All other Bidding Requirements that are not so amended or supplemented remain in full force and effect.

**Daily Field Reports (DFR)**

- Contractor shall include a minimum of 2 photos with each DFR. Photos are to be embedded within the report.

**Permits**

The contractor is responsible for obtaining all permits and paying all associated fees as part of their project bid that are required for excuting the project work. The list of required permits includes, but may not be limited to:

City of Detroit

- Department of Water and Sewer: Obtain two sewer tap permits using review no. WSP-1968
- Department of Public Works: ROW permit at (313) 224-3935

DTMB

- Soil Erosion and Sedimentation Control Authorization: Fill out Contractor Checklist and SESC Implementation Plan and submit to DTMB for permit

LARA

Submit permits to State of Michigan under review no. BCC-003225. Required permits include:

- Building Permit
- Electrical Permit
- Plumbing Permit

**Site Hours**

MDOT Detroit Garage personnel working hours are from 6:00 AM to 2:30 PM. Contractors will be given access to continue work one site past working hours and are allowed to work weekends with prior approval of the Owner. Coordinate site access with Owner.

Click or tap here to enter text.

**END OF SECTION 00120**

## SECTION 00210 – INFORMATION FOR BIDDERS

**PROFESSIONAL** – NTH Consultants, Ltd.
WORK – MDOT Garage Storm Sewer Reconstruction
FILE No. – 591/22274.MNB

### 1.0 RELATED PROVISIONS

1.1. Paragraphs 3.4 through 3.7 of Section 00100 Instructions to Bidders, which contain terms and conditions governing the information made available to Bidders in this Section, are made part of this Section 00210 Information for Bidders by this reference.

### 2.0 SUBSURFACE CONDITIONS

2.1. The reports of explorations and tests of subsurface conditions itemized immediately below have been used by the **Professional** in the preparation of the Bidding Documents.

Phase 1 Environmental Assessment – March 2003

Limited Phase II Environmental Site Assessment – July 2023

Environmental Construction Management Plan – February 2024

2.1.1. Information or data contained in those reports that may be properly considered Authorized Technical Data concerning subsurface conditions include (NOTE: All other information or data excluded from the list below represent Non-Technical Information or Data, interpretations, or opinions):

Click or tap here to enter text.

2.2. The reports of explorations and tests of subsurface conditions itemized immediately below have not been used by the **Professional** in the preparation of the Bidding Documents. Those reports are available at the office of the **Professional** for review or purchase. Neither the **Owner** nor **Professional** warrants that this list identifies all existing relevant documents.

### 3.0 OTHER PHYSICAL CONDITIONS

3.1. The Drawings and technical Specifications and those drawings itemized immediately below contain information or data that have been used by the **Professional** in the preparation of the Bidding Documents, and that may be properly considered Authorized Technical Data concerning physical conditions of existing surface and subsurface facilities.

Detroit Garage – Plumbing – Roofing – Drainage plans - 2006

CSB Analytical Laboratory Reports – July 2024

3.2. The reference documents itemized immediately below have not been used by the **Professional** in the preparation of the Bidding Documents and are available at the office of the **Professional** for review or purchase. Information and data contained in those reference documents, including, but not limited to dimensions, locations and conditions of existing surface and subsurface structures, roadways, piping, raceways, equipment, etc. may not accurately or reliably reflect actual conditions. Neither the **Owner** nor **Professional** warrants that this list identifies all existing relevant documents.

### 4.0 UNDERGROUND UTILITIES

4.1. Information or data about physical conditions of existing Underground Utilities, that have been used by the **Professional** in the preparation of the Bidding Documents, is shown or indicated in the Drawings and technical Specifications and those Underground Utility drawings itemized immediately below.

MDOT Detroit Maintenance Garage IDEP Investigation Report – December 2020

Corby_Spicer Group CCTV Sewer Investigation Report – July 2022

MDOT Detroit Maintenance Garage – CCTV Investigation of 8-Inch Combined Sewer Report – January 2024Click or tap here to enter text.

### 5.0 PERMITS, APPROVALS, LICENSES AND FEES

5.1. To the extent that the **Owner** has secured or will secure any permits, approvals and licenses and has paid or will pay any associated charges and fees, any such permits, approvals and licenses are itemized in this paragraph.

None

5.2. In the event any permits, approvals and licenses itemized in paragraph 5.1 have been obtained by the **Owner** and the fees have been paid, copies of those permits, approvals, licenses, and corresponding fee receipts, will be attached by the **Professional** as a PDF copy with the SIGMA posting or will otherwise be made available for contractor to download.

5.3. Except for any permits, approvals, licenses, and fees identified in paragraph 5.1, the **Contractor** shall be responsible for all permits, approvals, licenses, and fees applicable to Work.

### 6.0 SEQUENCING REQUIREMENTS

6.1. Refer to the technical Specifications, including, but not limited to the General Requirements, for information, data, and criteria on sequences of Work restraints, constructability, and maintenance of service to existing facilities, which, if provided, shall govern the selection of Work sequences.

6.2. Each Bidder shall be responsible for any conclusions or interpretations the Bidder makes related to the selection of sequences and Means and Methods, based on the technical data made available, and/or those additional investigations or studies made or obtained by that Bidder.

**7.0 PREVAILING WAGE**

7.1. The Bidding Documents include either the attached Schedule of prevailing rates of wages and fringe benefits for all classes of Construction Mechanics called for in the Bid and resulting Contract, if any, or the attached current prevailing wage determination issued by the U.S. Department of Labor, as applicable depending on the funding source(s).

**END OF SECTION 00210**

**SECTION 00300 – BID SUMMARY**

DTMB-0401M (R 03/21)

# BID SUMMARY

## DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

**STATE FACILITIES ADMINISTRATION**
**DESIGN AND CONSTRUCTION DIVISION**
**3111 W. St. Joseph Street**
**Lansing, Michigan 48917**

**Bids must be submitted electronically through the SIGMA VSS website at** https://sigma.michigan.gov/PRDVSS1X1/Advantage4

| FILE NUMBER | FUNDING CODE | DEPARTMENT/AGENCY |
|---|---|---|
| 591/22274.MNB | MDOT Funded | Department of Transportation |

| CONTRACT TIME(S) | PROJECT NAME | LOCATION |
|---|---|---|
| 180 calendar days – Substantial Completion<br>255 calendar days – Final Completion | MDOT Garage Storm Sewer Reconstruction | 1500 E. Ferry Street Detroit, MI 48211 |

| BID OPENING DATE | FOR AN EXAMINATION OF THE SITE CONTACT: |
|---|---|
| 03/19/2025 at 2:00 pm ET | Not Applicable |

SEE SECTION 00100 INSTRUCTIONS TO BIDDERS AND SECTION 00700 GENERAL CONDITIONS PROVIDED WITH THE BIDDING DOCUMENTS.
**BID: WE PROPOSE TO FURNISH, PERFORM AND COMPLETE THE ENTIRE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS IN CONSIDERATION OF THE BID PRICE (S) STATED BELOW.**

| FIRM NAME AND COMPLETE ADDRESS | TELEPHONE NUMBER and E-MAIL ADDRESS |
|---|---|
| | **SIGMA VENDOR NUMBER** (protected information required for processing payments) |
| ☐ Qualified Disabled Veteran | |
| BIDDER'S SIGNATURE AND TITLE DATE | WITNESS' SIGNATURE DATE |

By signing this bid above, bidder certifies their enclosed Qualified Disabled Veteran and Michigan-Based Business Certifications.

**BASE BID FROM BID SCHEDULE** (Include specified Allowances):

_____ Dollars $_____
(use words) (in figures)

Alternate 1: (Add) _____ Dollars $ _____
(use words) (in figures)

Alternate 2: (Add) _____ Dollars $ _____
(use words) (in figures)

A PERFORMANCE BOND AND A PAYMENT BOND ARE REQUIRED FOR ALL BIDS OVER $50,000.00. EACH BID MUST BE ACCOMPANIED BY A FIVE (5) PERCENT BID GUARANTEE. BUILDERS RISK INSURANCE IS REQUIRED TO BE PROVIDED BY THE CONTRACTOR UNLESS OTHERWISE INDICATED IN THE BID DOCUMENTS.

BIDDERS ARE ALSO CAUTIONED TO FAMILIARIZE THEMSELVES WITH ALL OF THE OTHER CONDITIONS OF THE CONTRACT.

Project Scope of Work:

Replacement of existing stormwater catch basins, structures, and pipes along with construction of a new detention pond and forebay. Other items include general regrading and earthwork to promote drainage, construction of a new landscaping screening berm on the property, plumbing and electrical modifications for new lift stations, and other improvements associated with the items listed above. The work will also require removal of contaminated soil to a type II non-hazardous landfill facility. See schedule of alternates for description of roofing and additional foundation repair/waterproofing work.

Approximate project size: 2.0 acres. Refer to prints for more information.

The Bidder must figure its Base Bid on the specified, or Addendum-approved, materials and equipment **only**. No "or equal" or substitution proposals will be permitted after Bid opening, except as provided in the General Conditions.

Addenda: Bidder acknowledges receipt of Addenda: No. ___ dated: _____, No. ___ dated: _____ No. ___ dated: _____

## SECTION 00300 BID FORM

**PROFESSIONAL** – NTH Consultants,Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. – 591 FUNDING CODE. ___MDOT Funded_____ FILE No. 591/22274.MNB _____

### TABLE OF CONTENTS



### ARTICLE 1 THIS BID IS SUBMITTED TO THE STATE OF MICHIGAN ("the **Owner**").

1.1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the **Owner** on the form in Section 00500 Agreement and to furnish and perform the Work as specified or indicated in the Bidding Documents for the Bid prices in the "Bid Schedule" on this Section 00300 Bid Form, within the Contract Times specified in Section 00500 Agreement, and in accordance with all other provisions and terms and conditions of the Bidding Documents, including, without limitation, those dealing with the disposition of the Bid Security.

1.2. The undersigned Bidder agrees to hold this Bid open for acceptance by the **Owner** for the period specified in Article 9 of Section 00030 Advertisement.

**STATE OF MICHIGAN MODEL**
Developed from FORMSPEC™ Michigan Model

**1.3. The Bidder will provide a signed original of Section 00500 Agreement, the executed Section 00610 Performance Bond, the executed Section 00620 Payment Bond, and appropriate evidence of insurance within the times and in the manner specified in the Bidding Documents.**

### ARTICLE 2 THE BIDDER'S REPRESENTATIONS

**2.1. The Bidder has examined the Bidding Documents, including the Addenda acknowledged in the table below. The Bidder has verified that the Addenda acknowledged below include all issued Addenda. Except for Addenda, which solely revise the date of Bid, opening, failure by the Bidder to acknowledge receipt of all Addenda correctly, by either failing to complete or incorrectly completing the table below, shall justify the Owner's refusal to read the Bid and automatically disqualify the Bidder from any consideration for award of the Contract.**

No. ___ Dated _____ No. ___ Dated _____

No. ___ Dated _____ No. ___ Dated _____

No. ___ Dated _____ No. ___ Dated _____

2.2. The Bidder has taken those steps that are reasonably necessary to (a) ascertain and become familiar with the Work, site, and locality; (b) account for all applicable federal, state, and other local Laws and all general, local, and prevailing conditions that may in any manner affect cost, schedule, progress, performance or furnishing of the Work; and (c) study and account for the terms and conditions of the Bidding Documents. The Bidder has carefully correlated the Bidder's observations with the Bidding Documents.

2.3. The Bidder has studied carefully all reports concerning subsurface conditions and drawings of physical conditions of existing surface and subsurface facilities that have been used by the **Professional** and all documents of physical conditions of existing Underground Utilities facilities that have been used by the **Professional** – in both cases as identified in Section 00210 Information for bidders. The Bidder assumes responsibility for carefully and accurately locating existing Underground Utilities in a manner consistent with paragraph 10.3 of Section 00700 General Conditions and as required by 2013 PA 174, as amended, MCL 460.721 et seq. The Bidder accepts the determinations set forth in the Bidding Documents as to the extent of such Authorized Technical Data and Underground Utilities information and data contained in those reports, drawings, documents, or the Bidding Documents, as applicable, upon which the Bidder may rely.

2.4. To the extent Additional Technical Data has been considered by the Bidder as necessary for determining the Bid in Article 6 Bid Schedule, and the **Owner**, upon request, did not have the necessary Additional Technical Data, the Bidder assumes responsibility for having undertaken or undertaking reasonable examinations of the site and any other pertinent available information and data. The Bidder agrees to perform and furnish the Work affected by the conditions involved, at no increase in Contract Price and Contract Time, to the extent the information and data necessary for determining the Bid could have been discovered through reasonable examinations of the site and any other pertinent information and data available (including, but not limited to the information and data designated in Section 00210 Information for Bidders).

2.5. The Bidder has carefully correlated the results of its observations, examinations, and studies of those reports of explorations and all that information and data in studies, drawings, and specifications, referred to in paragraphs 2.3 and 2.4, with the terms and conditions of the Bidding Documents.

2.6. The Bidder has examined all information and data shown or indicated in the Bidding Documents concerning other work, including, but not limited to provisions in Section 00700 General Conditions. The Bidder assumes responsibility for all reasonably foreseeable terms, conditions and consequences resulting from other work that may in any manner affect cost, schedule, progress, performance or furnishing of the Work.

2.7. The Bidder has carefully examined the terms and conditions of the Bidding Documents concerning Delay, Activity Float times and early completion. The Bidder agrees that increases in Contract Price and/or Contract Time for Delay shall be as provided in Section 00700 General Conditions. The Bidder has correlated those terms and conditions with the Bidder's schedule for the Work and its Base Bid and Alternates.

2.8. The Bidder represents that each unit price covering Specified or Contingent Unit Price Work, whether bid on Article 6 – Bid Schedule or on Article 7 – Schedule of Change Order Prices, includes sufficient amounts to cover (a) all labor costs, Subcontractor costs, material and equipment costs, construction equipment costs and general conditions costs, and (b) all administrative costs and home office overhead), and (c) profit. The **Owner** reserves the right to reject any unit prices bid on paragraph 6.2 Schedule of Alternates or in Article 7 Schedule of Change Order Prices, which, in the **Owner's** sole discretion, are not in the **Owner's** best interest.

2.9. The Bidder has given the **Professional** written notice of all conflicts, ambiguities, errors, or omissions the Bidder has discovered in the Bidding Documents, and the written resolution given by the **Professional** is acceptable to the Bidder.

2.10. This Bid is genuine, is not made in the interest of or on behalf of any undisclosed person and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation. To induce the **Owner** into consideration of this Bid, the Bidder reiterates and makes each of the representations made by the Bidder in Section 00320 Non-collusion Affidavit attached to this Section 00300 Bid Form.

2.11. The Bidder is aware of the **Owner's** requirements for business owned by minorities, women, and persons with physical or mental disabilities, and assumes responsibility for all conditions and consequences that may result from meeting those requirements and that may in any manner affect cost, schedule, progress, performance and furnishing of the Work.

2.12. The Bidder has read and studied each provision of the Bidding Documents. The Bidder has no expectations different from the terms and conditions of the Bidding Documents.

## ARTICLE 3 TIME OF COMPLETION

3.1. The Contract Times are specified in paragraph 4.1 of Section 00500 Agreement. The Bidder has carefully correlated the provisions in paragraph 4.1 of Section 00500 Agreement with the other terms and conditions of the Bidding Documents and unequivocally accepts the Contract Times for the Work, and any other designated parts of the Work, as specified.

3.2. The Bidder unequivocally accepts the liquidated damage provisions specified in paragraph 4.2 of Section 00500 Agreement in the event of any failure, neglect, or refusal to complete the Work, or designated part of the Work, within the corresponding Contract Times specified in paragraph 4.1 of Section 00500 Agreement.

## ARTICLE 4 ATTACHMENTS INCLUDED WITH THIS BID

4.1. Attachments to this Section 00300 Bid Form and made a condition of this Bid are:

4.1.1. Evidence of Authority to Sign the Bid.

4.1.2. Section 00310 Bid Bond, with the attached certified copy of Power of Attorney, or

Alternate Bid Security.

4.1.3. Section 00320 Non-collusion Affidavit.

***TO BE PROVIDED POST BID WITH SECTION 00400 SUBMITTALS***:

4.1.5 Current EMR Rating

4.1.6 Identification of the proposed project superintendent with a resume or list of similar projects handled by that individual.

4.1.7 A list of at least three (3) projects completed within the last three (3) years of similar size and complexity, with contact information for references for each.

4.2. Bidder-provided documents, made a condition of this Bid, are as required in the following Section(s) of the Bidding Documents:

_____

## ARTICLE 5 DEFINED TERMS

5.1. Section 00020 Glossary assigns specific intent and meanings to capitalized terms and to other defined terms used in (a) this Section 00300 Bid Form, (b) Section 00310 Bid Bond and Section 00320 Non-collusion Affidavit), and (c) Section 00410 Bid Breakdown, Section 00420 Questionnaire, Section 00430 List of Subcontractors and Section 00440 Schedule of Materials and Equipment.

## ARTICLE 6 BID SCHEDULE

**6.1 Base Bid Schedule** - The Bidder will complete the Work and accept in full payment, for the Work items listed, the following unit prices and/or Bid Prices, as applicable:

| Base Bid Item No. | Bid Quantity | Description | Item Bid Price |
|---|---|---|---|
| 1 | 1 | General Conditions | |
| 2 | 1 | Demolition, Excavation, Abandonment, and Removals | |
| 3 | 1 | Proposed Utility, Detention Pond, Outfall Work and Backfill | |
| 4 | 1 | Proposed Electrical Work | |
| 5 | 1 | Proposed Plumbing Work inside Cold Storage Building | |
| 6 | 1 | Proposed Site Restoration | |
| 7 | 1 | Miscellaneous Work not included above to fully furnish and install complete and operational work in accordance with the project documents | |
| 8 | 1 | ALLOWANCE AMOUNT | $100,000.00 |
| | | TOTAL BASE BID AMOUNT | |

**Base Bid** (Sum of Bid Prices for all Base Bid Items):

_____ Dollars and No/Cents $_____
(use words) (in figures)

Name of the Bidder _____ Agency No. ___591_____Funding Code__MDOT__ File No. 22274.MNB

Date _____

**SIGMA VENDOR NUMBER** _____

Telephone No. _____

**6.2 Schedule of Alternates** - The Bidder will add to the Contract the parts of the Work designated by the Alternates that follow and that follow and accept in full payment for the Work the following Bid Prices:

| Alternate Item No. | Bid Quantity | Description | Item Bid Price |
|---|---|---|---|
| 1 | 1 | **Lump sum of the following:**<br>• **Cold Storage Building foundation repair and waterproofing of existing CMU foundation walls as shown on sheets C-R100 thru C-R109.** | |
| 2 | 1 | **Lump sum of the following:**<br>• **Demolition of existing gutter and downspouts around Cold Storage Building.**<br>• **Construction of new gutter, downspouts, and connections to underground piping around Cold Storage Building as seen on sheet C-113B and C-507.**<br>• **Deletion of existing downspout riser locations to be installed for existing Cold Storage Building downspouts as specified in base bid. Deletion of caps for proposed downspout riser locations on the Cold Storage Building.** | |

The Bidder further acknowledges and agrees that the separate prices bid on this "Schedule of Alternates," where they are applicable and deemed acceptable by the **Owner**, will be used if incorporated into the Contract when the **Owner** issues the Notice of Award.

Name of the Bidder _____ Agency No. __591___Funding Code: MDOT File No. 22274.MNB

Date _____

**SIGMA VENDOR NUMBER** _____

Telephone No. _____

## ARTICLE 7 SCHEDULE OF CHANGE ORDER PRICES

7.1 The Bidder shall use this "Schedule of Change Order Prices" to propose contingent prices. The proposed contingent Change Order prices set forth in this schedule, at the sole discretion of the **Owner,** may, or may not be incorporated into the Contract Documents. The **Owner** reserves the right to negotiate contingent Change Order prices set forth herein prior to their possible incorporation into the Contract Documents. Proposed Change Order prices will not affect determination of the lowest Bid.

7.2 Subject to their incorporation into the Contract Documents, as provided in the Agreement, the Bidder will add to, or deduct from, the Contract Work covered by the contingent prices that follow and accept in full payment, or allow in full credit, for that Work (a) those prices bid by the Bidder, or (b) if a particular price is not bid, the price proposed by the **Owner** (and shown in the appropriate column):

| Item No. | Bid Quantity | Description | Item Bid Price |
|---|---|---|---|
| 1 | CY | Excavation and Off-Site Legal Disposal of Non-Hazardous Contaminated Material and Liquids | |
| 2 | CY | Excavation and Removal of subsurface concrete and/ or debris within project limits up to 5 feet deep | |
| 3 | CY | Excavation and Removal of subsurface concrete and/ or debris within project limits 5 to 10 feet deep | |
| 4 | CY | Remove and Replace pavement base/subbase aggregate per project specification where existing aggregate base is not present at the required thickness or fails proof-rolling or compaction requirements. | |
| 5 | CY | Perform subgrade undercut and replacement with suitable material per project specification where existing subgrade fails proof-rolling, compaction requirements, or undercut is required. | |
| 6 | EA | (Alt 1) Remove and replace deteriorated and/or cracked CMU blocks | |
| 7 | LF | (Alt 1) Remove and replace deteriorated mortar joints at CMU blocks | |
| 8 | LF | Remove and replace sealant | |
| 9 | SF | (Alt 1) Install Tar-based waterproofing system on concrete foundation wall (excludes excavation) | |
| 10 | SF | (Alt 1) Patch cracked and spalled concrete (Shallow Repairs<2inches deep) | |
| 11 | SF | (Alt 1) Patch cracked and spalled concrete (Deep Repairs>2inches deep) | |
| 12 | EA | (Alt 2) Downspout Connection PVC Piping and Threaded Cap | |

Name of the Bidder _____ Agency No. ___591_____

Funding Code__MDOT Funded_____ File No. __22274.MNB _____

Date _____

**SIGMA VENDOR NUMBER** _____

Telephone No. _____

**ARTICLE 8 BID SUBMITTED ON the _____ day of _____, 20____.**

**8.1. Bid Security** is in the form of a Bid Bond _____ Bid Bond form provided in Section 00310 has been duly executed _____; or

A Certified or Cashier's check ___ or Money Order ___ *if a check or money order is provided as Bid Security, the original check/money order must be delivered before Bid Due Time to the issuing office as per Section 00100 paragraph 5.2 and Section 00110 item 3.*

**8.2. If the Bidder is an Individual:**

Name of Individual: _____

Name & Title of Person Authorized to sign: _____

Signature: _____
(If not the Individual, Attach Power of Attorney) Date

Doing Business as: _____

Business Address: _____

**SIGMA VENDOR NUMBER**_____

County of registration _____

Telephone: _____ FAX: _____

**8.3. If the Bidder is a Partnership:**

By: _____
(True Name of the Partnership)

_____
Partner Authorized to Sign Date

Signature: _____
(Attach evidence of Authority to sign) Date

Business Address: _____

**SIGMA VENDOR NUMBER**_____

County of registration _____

Telephone: _____ FAX _____

**8.4. If the Bidder is a Corporation:**

By: _____
(Legal Corporation Name)

Name & Title of Authorized Officer: _____

Signature: _____
(Attach evidence of Authority to sign) Date

Name & Title of Officer Attesting: _____

Signature: _____
Date

Business Address: _____

**SIGMA VENDOR NUMBER**_____

Telephone: _____ FAX _____

(State of Incorporation): _____

**8.5. If The Bidder is A Joint Venture:** JOINT VENTURE SIGNATURES SHALL BE AS PROVIDED IN PARAGRAPH 9.5 OF SECTION 00100 INSTRUCTIONS TO BIDDERS. EACH JOINT VENTURER SIGNING THE BID SHALL SIGN IN THE MANNER INDICATED FOR AN INDIVIDUAL, A PARTNERSHIP OR A CORPORATION. IF MORE THAN TWO JOINT VENTURERS OF THE SAME TYPE ARE INCLUDED, USE ADDITIONAL PAGES. JOINT VENTURE STATE OF INCORPORATION _____ OR COUNTY OF REGISTRATION _____

**CERTIFICATE OF PRINCIPAL**

**(BIDDER)**

I, _____, certify that I am the Secretary of the Corporation ____, or a General Partner ____ or Managing Partner ____ or Partner ____ of the partnership, named as the Bidder in the attached Section 00300 Bid Form; that _____ _____ who signed Section 00300 Bid Form on behalf of the Bidder, was then _____ of that corporation ____ or partnership ____; that I know the undersigned's signature, and the signature is genuine; and that Section 00300 Bid Form was duly signed, sealed and attested for and on behalf of that corporation ___ partnership ___ by authority of its governing body ___ or partners ___

_____ _____
Signed by the Secretary or Other Authorized Officer of the Corporation Date
or By General Partner or Managing Partner or Authorized Partner Certifying

_____
Name of the Corporation or True Name of the Partnership

Federal Identification (I.D.) No. or Social Security No. (**LAST 4 ONLY**)_____

Telephone No. _____

(Corporate Seal)

**VERIFICATION**
**(BIDDER)**

STATE OF MICHIGAN )
)
COUNTY OF _____ )

Before me, a Notary duly commissioned, qualified and acting, personally appeared (enter name of person who signed the Bid Form on behalf of the Bidder), _____ to me well known to be the person described in and who signed Section 00300 Bid Form, who being by me first duly sworn upon oath, says that he/she is the Attorney-in-Fact for (enter the Bidder's name) _____ and that he/she has been authorized by (enter name of individual, partnership name, or that governing body of the Bidder named in the attached corporate resolution) _____ _____ to execute the attached Section 00300 Bid Form on behalf of the named Bidder in favor of the STATE OF MICHIGAN.

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

_____

Notary Public, State of: _____

My Commission Expires: _____

**END OF SECTION 00300**

**SECTION 00310 BID BOND**

**AGENCY No. 591 Funding Code: _MDOT Funded_____**

**FILE No. 22274.MNB SURETY COMPANY REFERENCE No. _____**

KNOW ALL PERSONS BY THESE PRESENTS: That we, "the Bidder," _____, a corporation ____, individual ____, partnership ____, joint venture ____, of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the Surety," _____, of the State of _____, as surety, are hereby held and firmly bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars ($_____), and if no amount is entered, in the amount of five percent (5%) of the Bidder's Base Bid designated in paragraph 6.1 Base Bid Schedule in Section 00300 Bid Form, for the payment of which the Bidder and the Surety hereby bind ourselves, our respective heirs, successors, legal representatives and assigns, jointly and severally, firmly by these presents in accordance with Michigan Law.

WHEREAS, the Bidder has submitted to the **Owner** a Bid, to which this Bond is attached, to enter into the Contract with the **Owner** for _____ covered by Bidding Documents prepared by the **Professional**, which Bidding Documents are incorporated into this Bid Bond by this reference:

NOW, THEREFORE: THE CONDITION OF THIS OBLIGATION IS THAT, if the Bidder faithfully performs and fulfills all the understandings, covenants, terms and conditions of the Bidding Documents governing the bidding and award of the Contract (including Addenda issued before Bid opening and any post–Bid Addenda) within the time specified or any extension thereof, with or without notice to the Surety or fails to do so but pays to the **Owner** the full amount of the sum set forth in this Section 00310 Bid Bond as liquidated damages - then THIS OBLIGATION SHALL BE NULL AND VOID, OTHERWISE THIS OBLIGATION SHALL REMAIN IN FULL FORCE AND EFFECT.

A. If the **Owner** makes demand on the Surety to perform in accordance with the Surety's obligations under this Section 00310 Bid Bond, the full amount of the sum set forth in this Section 00310 Bid Bond shall be immediately due and payable to the **Owner**, and the Surety shall pay that sum without delay. Additionally, the Surety shall reimburse the **Owner** all costs of collection, which shall include, but not be limited to reasonable fees and charges of architects, engineers, attorneys and others, court or hearing costs incurred with or without suit, and interest.

B. The Surety, for value received, stipulates, and agrees that the obligations of the Surety and this Section 00310 Bid Bond shall be in no way impaired or affected by any extension of the time within which the **Owner** may accept the Bid, and the Surety does, by this agreement, waive notice of any such extension.

C. It is the intention of the Bidder, Surety and **Owner** that the Surety shall be bound by all terms and conditions of the Bidding Documents and this Section 00310 Bid Bond. However, if any provision(s) of this Section 00310 Bid Bond is/are illegal, invalid, or unenforceable, all other provisions of this Section 00310 Bid Bond shall nevertheless remain in full force and effect, and the **Owner** shall be protected to the full extent provided by Michigan Law.

**IMPORTANT**: The Surety shall be authorized to do business in the State by the Department of Consumer and Industry Services – Insurance Bureau and listed on the current U.S. Department of the Treasury Circular 570 and shall be otherwise acceptable to the **Owner**.

Address and Telephone of Surety

Address and Telephone of Agent

Signed and sealed this _____ day of _____, 20____ (NOTE: Use the date entered on Article 8 of Section 00300 Bid Form).

THE BIDDER: (Print Full Name and Sign)

By: _____

Name & Title: _____

Signature: _____

WITNESS: _____

Telephone No. _____

THE SURETY: (Print Full Name and Sign)

By Agent: _____

By Attorney-in-Fact: _____
(Attach Certified Copy of Power of Attorney)

Signature: _____

WITNESS: _____

Telephone No. _____

**END OF SECTION 00310**

**SECTION 00320 NONCOLLUSION AFFIDAVIT**

**PROFESSIONAL** – NTH Consultants, Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. – 591 FUNDING CODE: _MDOT Funded_____ FILE No. 22274.MNB

Affiant, _____, being first duly sworn, deposes and says that:

(1) Affiant is (enter title) _____ of _____ _____, "the Bidder." Affiant has personal knowledge of the matters set forth in this Affidavit and is competent to testify about them.

(2) The Bidder has submitted to the **Owner** a "Bid" to enter into the above referenced Contract, also referred to in this Affidavit as "the Work."

(3) This Section 00320 Non-collusion Affidavit is executed by Affiant for inclusion with the submission to the **Owner** of the Bid and may be relied upon by the **Owner** in considering the Bid.

(4) Affiant is fully informed about the preparation and contents of the Bid and of all pertinent circumstances surrounding the Bid, has not entered into any contract, combination, conspiracy, or other act prohibited by federal, State or any other local Law. The Bid is genuine and is not a collusive or sham Bid.

(5) Neither the Bidder nor any of the Bidder's owners, officers, partners, directors, agents, representatives, employees or parties in interest, including this Affiant, have in any way entered or proposed to enter into any combination to prevent the making of any Bid, or to fix any prices (including overhead, profit or other costs) for the Bid; or have made any agreement, or given or promised any consideration to induce any other person not to Bid for the Work, or to Bid at a specified price; or have secured, proposed or intended to secure through any agreement an unlawful advantage against the **Owner** or any other person interested in the Work.

(6) No officer or employee of the State of Michigan is personally or financially interested, directly or indirectly, in the Bid, or any Contract which may be under it, or in the purchase or sale of any materials, equipment or supplies for the Work to which it relates, or any portion of any expected profits thereto.

(7) The Bid is not intended to secure an unfair advantage or benefit from the **Owner** or in favor of any person interested in the proposed Contract.

(8) The prices bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any other of the Bidder's owners, officers, partners, directors, agents, representatives, employees or parties in interest, including this Affiant; and neither the Bidder nor any of its owners, officers, partners, directors, agents, representatives, employees or parties in interest, including this Affiant, have divulged any information regarding the Bid or any data about the Bid to any other person.

By: _____ Title: _____

SIGMA VENDOR NUMBER_____ Telephone No. _____

**VERIFICATION**

STATE OF _____ )
)
COUNTY OF _____ )

Before me, a Notary Public commissioned, qualified and acting, personally appeared (enter name of the person signing this Affidavit) _____ to me well known to be the person described in and who signed this Section 00320 Non-collusion Affidavit, who being by me first duly sworn upon oath, says that he/she is the Attorney-in-Fact for (enter Bidder's name) _____-_____, that he/she has been authorized by (enter name of individual, partnership name, or the authorized governing body of the Bidder) _____ to execute this Section 00320 Non-collusion Affidavit on behalf of the named Bidder in favor of the STATE OF MICHIGAN, for the uses and purposes mentioned.

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

_____

Notary Public, State of _____

My Commission expires: _____, 20 ___

**END OF SECTION 00320**

**SECTION 00410 BID BREAKDOWN**

**PROFESSIONAL** – NTH Consultants, Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. – 591 FUNDING CODE: ___MDOT Funded_____ FILE No. 22274.MNB

**1.0 BID BREAKDOWN:** The Apparent Low Bidder shall itemize below a cost breakdown of the Apparent Low Bidder's Bid. The Bid Breakdown shall be organized into separable parts of the Work so that one hundred percent (100%) of the Base Bid plus all Alternates is accounted for. Portions of the Work for which costs are itemized shall include Work to be furnished and performed directly by the Apparent Low Bidder and its Subcontractors and Suppliers, as applicable. Each separable part of the Work identified in this Bid Breakdown shall have a value not exceeding ten percent (10%) of the Apparent Low Bidder's Base Bid, except parts of the Work designating furnished materials or equipment, which may be itemized as quoted.

**2.0 DISCREPANCIES:** Discrepancies in this Section 00410 Bid Breakdown shall be resolved in accordance with Article 14 of the Instructions to Bidders. Any discrepancies between the Apparent Low Bidder's Bid Breakdown and Article 6 "Bid Schedule" on the Apparent Low Bidder's Section 00300 Bid Form with respect to a given lump sum item, unit price item or "One Each" item, or any sum of any of them, will be resolved so that the corresponding amount(s) on the Apparent Low Bidder's Section 00300 Bid Form will be binding on the Apparent Low Bidder.

**END OF SECTION 00410**

**SECTION 00420 QUESTIONNAIRE**

**PROFESSIONAL** – NTH Consultants, Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. – 591 FUNDING CODE: ___ MDOT Funded _____ FILE No. 22274.MNB

**ARTICLE 1 ORGANIZATION**

1.1. Date of organization (or incorporation) _____ State of incorporation _____ (IRS) EIN _____

1.2. Title and name of Principals (President, Vice-Presidents, Secretary and Treasurer, if a corporation; partners, if a partnership)

_____

_____

1.3. Is your organization's principal place of business maintained in the State of Michigan? ___ If your organization maintains its principal place of business outside the State, attach a copy of the Certificate of Authority which your organization procured in accordance with MCL 450.2011.

1.4. If your organization, any business entity related to or affiliated with your organization, or any present or former executive employee, officer, director, shareholder (owning twenty percent (20%) or more of the outstanding shares), partner, or owner of your organization or of any such related or affiliated entity has ever been convicted of a felony, or has felony charges pending, in any state within the last three (3) years from the date of Bid opening, furnish with this Bidder's Questionnaire all material facts relating to any such felony conviction or such pending felony charges.

**ARTICLE 2 SPECIALTY CONTRACTOR LICENSES**

2.1. Does your organization hold valid licenses covering specialty classifications of Work that your organization itself intends to perform and for which a specific specialty license is required by any Political Subdivision with jurisdiction over the Work _____? If so, attach a list with all licenses by number and classification; state the name of the organization holding the license, the renewal date of each license, whether each license is active, and attach a copy of each license.

**ARTICLE 3 EXPERIENCE**

3.1. What is the general character of the work performed by your organization? _____ How many years of experience in construction work similar in character and scope to the Work under the Bidding Documents has your organization had: (a) as a General Contractor? _____; (b) as a Subcontractor? _____.

3.2. Attach a list of all public contracts or subcontracts under public contracts that your organization has performed within the last five (5) years which are similar in character and scope to the Work under the Bidding Documents (using the forms in the "References Attachment" provided with this Questionnaire). If the contract or subcontract referenced is not substantially completed, furnish the percent complete for that contract or subcontract.

3.3. Within the last five (5) years, has your organization been in litigation with The State of Michigan or failed to complete a contract or subcontract awarded to it? _____ If so, attach a list for each contract or subcontract, state when, where and why.

3.4. Within the last five (5) years, has any officer, partner or executive employee of your organization been an officer, partner or employee of another organization that was involved in a litigation with The State of Michigan? or failed to complete a contract or subcontract? _____. If so, for each contract or subcontract, state the name of each officer, partner or employee and the name of the organization and owner(s), and the explanation of litigation or reasons why the contract or subcontract was not completed.

3.5 Identify your organizations Experience Modification Rating (EMR) _____. Attach a letter of explanation if your organization does not have an EMR.

3.6 Provide the name and attach a brief resume and list of similar success projects for your proposed Project Superintendent.

**ARTICLE 4 ADDITIONAL QUALIFICATIONS**

4.1. (**Nominated Subcontractor only**) Will you subcontract any part of the Work covered by the intended Sub agreement? ___. If so, which parts of the Work covered by the intended Sub agreement do you intend to subcontract to a lower tier Subcontractor? _____

4.2. State the name, address, and telephone number of a representative of your organization who personally visited and inspected the site: _____.

Also, describe, in an attachment to this Section 00420 Questionnaire, subsurface and physical conditions at or contiguous to the site that your representative investigated and how they were accounted for in the preparation of your organization's Bid.

4.3. Attach a list of construction equipment and machinery your organization intends to use in the execution of the Work, as estimated in the preparation of your organization's Bid.

4.4. Does your organization rent or lease equipment or facilities from other affiliate organizations? _____. If so, state the name of the affiliate organization(s) _____

4.5. (**Apparent Low Bidder only**) Bank line of credit available? $_____.

4.6. (**Apparent Low Bidder only**) Will your organization, i.e., the Bidder named in the Authorized Signature Article on Section 00300 Bid Form, be the only named Principal in Section 00610 Performance Bond and Section 00620 Payment Bond? _____ If not, please identify the organization who will be named as Principal or Co-Principal on Section 00610 Performance Bond and Section 00620 Payment Bond _____. Also, state how such organization relates to the Bidder _____ (NOTE: If another organization is identified, the Apparent Low Bidder shall submit to the **Owner** a separate Section 00420 Questionnaire filled out by that organization as part of the Qualification Submittals required under Article 2 of Section 00100 Instructions to Bidders).

**ARTICLE 5 REFERENCES**

5.1. Trade references (Minimum of three (3)):

5.2. Bank references:

5.3. Insurance:

The undersigned Apparent Low Bidder ____ or nominated Subcontractor _____ _____ certifies that all statements and answers made to the interrogatories in this Section 00420 Questionnaire are current, accurate and complete as of the date stated below. (Note: Attachments shall be fastened at the end of this Section).

Signed by: _____ Name _____ Title _____

on this _____ day of _____, 20_____.

**END OF SECTION 00420**

**REFERENCES ATTACHMENT**

**PROFESSIONAL** – NTH Consultants, Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. – 591 FUNDING CODE: ___ MDOT Funded _____ FILE No. 22274.MNB

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**REFERENCE #___**

Public Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

_____

Apparent Low Bidder's ___ or Nominated Subcontractor's ____

Representative Name and Telephone _____

Scope of Project/Contract: _____

_____

**REFERENCE #___**

Public Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

_____

Apparent Low Bidder's ___ or Nominated Subcontractor's ____

Representative Name and Telephone _____

Scope of Project/Contract: _____

_____

**REFERENCES ATTACHMENT**

**PROFESSIONAL** – NTH Consultants, Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. – 591 FUNDING CODE: __ MDOT Funded _____ FILE No. 22274.MNB

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**REFERENCE #___**

Public Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

_____

Apparent Low Bidder's ___ or Nominated Subcontractor's ____

Representative Name and Telephone _____

Scope of Project/Contract: _____

_____

**REFERENCE #___**

Public Owner: _____

Project/Contract Name: _____

Location of Project/Contract: _____

Contract Price: _____ Project/Contract Started: _____ Completed: _____

Owner's Representative (Name and Telephone): _____

_____

Apparent Low Bidder's ___ or Nominated Subcontractor's ____

Representative Name and Telephone _____

Scope of Project/Contract: _____

_____

## SECTION 00430 LIST OF SUBCONTRACTORS

**PROFESSIONAL** – NTH Consultants, Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. 591 FUNDING CODE: __ MDOT Funded _____ FILE No. 22274.MNB

1. To enable the **Owner** and **Professional** to evaluate the Apparent Low Bidder's qualifications to perform the Work, for each Division of the Specifications, Section of the Specifications and/or trade itemized in this Section 00430 List of Subcontractors, the Apparent Low Bidder shall nominate the Subcontractor(s) to be awarded a Sub agreement(s). To the extent a contractors' licensing is required for any such classification of Work, the Apparent Low Bidder shall provide the nominated Subcontractor's license number(s). If the Apparent Low Bidder intends to self-perform any of the listed classifications of Work, the Apparent Low Bidder shall nominate itself in the spaces provided for that purpose and shall furnish the corresponding Apparent Low Bidder's license number(s). For each nominated Subcontractor, the Apparent Low Bidder shall enter, if applicable, whether the Subcontractor is a minority, woman or handicapped owned business in the spaces provided for that purpose. The Apparent Low Bidder also shall furnish the amount of the Sub agreement that the Apparent Low Bidder, directly or through another higher tier Subcontractor, anticipates awarding to each nominated Subcontractor.

2. Should the Apparent Low Bidder fail to nominate Subcontractors, as required, or provide duplicate nominees for any Division, Specification, or trade, or fail to enter the required licensing information, the Apparent Low Bidder shall clarify the omission or ambiguity within two (2) Business Days of the **Owner** or **Professional's** request. Failure by the Apparent Low Bidder to comply with this Subcontractor nominating requirement may render the Bid as not conforming in all material respects with the requirements of the Bidding Documents.

3. Pursuant to the Bidding Documents, the Apparent Low Bidder shall not remove, replace, or add a nominated Subcontractor except as provided in paragraph 8.3 of Section 00100 Instructions to Bidders and/or in paragraph 5.1 of Section 00700 General Conditions. Since the requirement to nominate Subcontractors for the *listed* Divisions, Specification Sections and/or trades survives the award of the Contract, any Subcontractor nominated for any *listed* Division, Specification Section and/or trade *for the first time* after Contract Award and who is objected to by the **Owner**, for good cause, shall be replaced at no increase in Contract Price and/or Contract Time.

4. The requirement to make a definite nomination of Subcontractors or to state that the Apparent Low Bidder intends to self-perform that classification, and to clarify any omissions or ambiguities in this Section 00430 List of Subcontractors, applies to the Apparent Low Bidder and any other Bidder remaining or wishing to remain in contention for the award.

5. This listing requirement is not intended to create any express or implied duty or obligation to the Apparent Low Bidder or the nominated Subcontractors by the **Owner** or **Professional**.

**(THE REMAINDER OF THIS PAGE LEFT BLANK INTENTIONALLY)**

| Division, Specification Section and/or Trade | Nominated Subcontractor(s) | License Number(s) Classification | Amount of Subcontract |
|---|---|---|---|
| 1._____ | _____ | _____ | _____ |
| 2._____ | _____ | _____ | _____ |
| 3._____ | _____ | _____ | _____ |
| 4._____ | _____ | _____ | _____ |
| 5._____ | _____ | _____ | _____ |
| 6._____ | _____ | _____ | _____ |
| 7._____ | _____ | _____ | _____ |
| 8._____ | _____ | _____ | _____ |
| 9._____ | _____ | _____ | _____ |
| 10._____ | _____ | _____ | _____ |
| 11._____ | _____ | _____ | _____ |
| 12._____ | _____ | _____ | _____ |
| 13._____ | _____ | _____ | _____ |
| 14._____ | _____ | _____ | _____ |

The undersigned Apparent Low Bidder _____ certifies that all the information and data furnished in this Section 00430 List of Subcontractors are current, accurate and complete as of the date stated below.

Signed by: _____ Name _____ Title _____

on this _____ day of _____, 20_____.

**END OF SECTION 00430**

**PROFESSIONAL** – NTH Consultants, Ltd.
WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. – 591 FUNDING CODE: MDOT Funded FILE No. 22274.MNB

**ARTICLE 1 BID MATERIALS AND EQUIPMENT — *LISTED (NAMED OR SPECIFIED) ITEMS***

1.1. The Apparent Low Bidder has examined the requirements of paragraphs 7.4 and 7.5 of Section 00100 Instructions to Bidders, and by submitting a Bid, commits to bid only a *listed* named or specified materials and equipment for those Specifications *listed* in Schedule 1.6. To the extent that any such *listed* Specification states that an "or equal" or a substitute may be furnished, if acceptable to the **Professional,** application for any such acceptance will not be considered by the **Professional** until after Contract Award. Any such application shall comply with the terms and conditions of Article 2 in this Section and paragraph 5.2 of Section 00700 General Conditions.

1.2. For those Sections of the Specifications *listed* in paragraph 1.6, the Contract will be awarded on the basis that only one of the *listed* materials or equipment will be furnished. Therefore, to be considered responsible, the Apparent Low Bidder shall nominate, by circling the letters "A," "B," "C," etc. corresponding to each *listed* manufacturer/Supplier, the Bidder's chosen manufacturers/Suppliers for the corresponding products named or specified in the Specifications and Drawings (including all Addenda).

1.3. If the Apparent Low Bidder fails to circle a manufacturer/Supplier for a *listed* material or equipment, or circles more than one letter for a *listed* material or equipment, the Apparent Low Bidder hereby agrees to correct the omission or ambiguity within two (2) Business Days after submittal of this Section 00440 Schedule of Materials and Equipment. The requirement to make a definite selection and to correct any omissions or ambiguities in Schedule 1.6 applies to the Apparent Low Bidder and any other Bidder remaining or wishing to remain under consideration for the award.

1.4. The Apparent Low Bidder's attention is directed to paragraph 7.3 of Section 00100 Instruction to Bidders, which holds the Apparent Low Bidder responsible, if awarded the Contract, for certain costs and time impacts, provided the Apparent Low Bidder, in the preparation of its Bid, knew or had reason to know, that any *listed* material or equipment bid by the Bidder requires changes in the Work and failed to provide advanced written notice to that effect to the **Professional**.

1.5. The Apparent Low Bidder shall insert the provisions of this Section in all Sub agreements with Subcontractors and Suppliers furnishing the materials or equipment *listed* in Schedule 1.6, altering the respective paragraphs only as appropriate to properly identify the contracting parties. Each such Sub agreement shall expressly bind the respective Subcontractor or Supplier to the conditions of paragraph 1.4, the other provisions of Section 00440 Schedule of Materials And Equipment and paragraph 5.2 of Section 00700 General Conditions.

**1.6. Schedule of Bid Materials and Equipment**

| ITEMS NAMED OR SPECIFIED (ENTERED BY THE **PROFESSIONAL**) | | |
|---|---|---|
| ITEM OF MATERIAL OR EQUIPMENT | SPECIFICATION SECTION | **CONTRACTOR** TO NOMINATE (CIRCLE) ITS CHOSEN NAMED OR SPECIFIED MANUFACTURERS AND SUPPLIERS |
| ITEM 1 - | | A.<br>B.<br>C.<br>D. |
| ITEM 2 - | | A.<br>B.<br>C.<br>D. |
| ITEM 3 – | | |
| ITEM 4 - | | |

**1.7 Use of "Or Equal" or Substitute Materials or Equipment After Contract Award**

1.7.1. Paragraph 5.2 of Section 00700 General Conditions provides for the consideration (after the date of Contract Award) and possible acceptance by the **Professional** of "or equal" or substitute materials or equipment (unless any material or equipment named is followed by words establishing that no "or equal" or substitution is permitted). If sufficient information is submitted to allow the **Professional** to determine in a timely manner that the material or equipment proposed is equivalent or equal to that named or described in the Drawings or specified in the Specifications, then the **Professional** will consider the proposed "or equal" or substitute material or equipment.

1.7.2. The Apparent Low Bidder assumes responsibility for the cost and time required to make any proposed "or equal" or substitute material or equipment approved by the **Professional** conform to the requirements of the Contract Documents. In addition, if any such "or equal" or substitute material or equipment requires any changes in the drawings, or in any testing requirements, or in any Means and Methods indicated in or required by the Contract Documents, or in work performed by the **Owner** or others, or requires any other changes in the Work whatsoever, the Apparent Low Bidder shall assume full responsibility for the cost and the time required to carry out such changes in the Work or the work of others. Pursuant to this provision, the Apparent Low Bidder shall bear an appropriate portion of the Delay and costs resulting from the events contemplated in this paragraph.

1.7.3. Paragraph 5.2 of Section 00700 General Conditions provides for reimbursement by the **Contractor** to the **Owner** for any additional expenses incurred by the **Professional** directly attributable to the evaluation of any proposed substitute material or equipment and any proposed “or equal” material or equipment for materials and equipment *listed* in Schedule 1.6.

1.7.4. The Apparent Low Bidder shall insert the provisions of this Article 1 of Section 00440 Schedule of Materials and Equipment in all Sub agreements with Subcontractors and Suppliers furnishing any materials or equipment, altering the respective paragraphs only as appropriate to properly identify the contracting parties. Each such Sub agreement shall expressly bind the respective Subcontractor or Supplier to the conditions of paragraph 1.7.2, the other provisions of this Section 00440 Schedule of Materials And Equipment and paragraph 5.2 of Section 00700 General Conditions.

**ARTICLE 2 BID MATERIALS AND EQUIPMENT – *OPEN* SPECIFICATIONS**

2.1. For those Specifications *not listed* in Schedule 1.6, the Apparent Low Bidder, if and when awarded the Contract, shall disclose to the **Owner** and **Professional** (when submitting the Schedule of Values required by paragraph 12.1.1 of Section 00700 General Conditions) the Bidder's chosen manufacturers/Suppliers for the corresponding materials and equipment specified in the Specifications and Drawings (including all Addenda).

2.2. The Apparent Low Bidder has examined the requirements of paragraphs 7.2 and 7.3 of the Instructions to Bidders and commits to furnish materials and equipment meeting the requirements of the Specifications. If any such Bidder-selected material or equipment represents an "or equal" or a substitute material or equipment, no such material or equipment shall be used or furnished in the execution of the Work unless previously approved by the **Professional** as an acceptable "or equal" or substitute material or equipment. Application for any such acceptance will not be considered until after Contract Award. Any such application shall comply with the terms and conditions of this Article 2 and paragraph 5.2 of Section 00700 General Conditions.

2.3. The Apparent Low Bidder shall insert the provisions of this Section in all Sub agreements with Subcontractors and Suppliers furnishing the materials or equipment listed in Schedule 2.4, altering the respective paragraphs only as appropriate to properly identify the contracting parties. Each such Sub agreement shall expressly bind the respective Subcontractor or Supplier to the conditions of paragraph 2.2, the other provisions of this Section 00440 Schedule of Materials and Equipment and paragraph 5.2 of Section 00700 General Conditions.

**2.4. Schedule of Bid Materials and Equipment**

| MATERIAL OR EQUIPMENT | SPECIFICATION SECTION | **CONTRACTOR** TO NAME ITS CHOSEN MANUFACTURERS AND SUPPLIERS |
|---|---|---|
| ITEM 1 - | | |
| ITEM 2 - | | |
| ITEM 3 - | | |
| ITEM 4 - | | |
| ITEM 5 - | | |
| ITEM 6 - | | |
| ITEM 6 - | | |
| ITEM 7 - | | |
| ITEM 8 - | | |
| ITEM 9- | | |
| ITEM 10 - | | |
| ITEM 11- | | |
| ITEM 12 - | | |

| MATERIAL OR EQUIPMENT | SPECIFICATION SECTION | **CONTRACTOR** TO NAME ITS CHOSEN MANUFACTURERS AND SUPPLIERS |
|---|---|---|

**IMPORTANT**: The provisions of this Section 00440 Schedule of Materials and Equipment shall not create or impose any express or implied duty or obligation on the **Owner** or **Professional** to exercise this authority for the benefit of the Apparent Low Bidder or any *listed* manufacturer/Supplier.

The undersigned Apparent Low Bidder _____ certifies that all the information and data furnished in this Section 00440 Schedule of Materials and Equipment are current, accurate and complete as of the date stated below.

Signed by: _____ Name _____ Title _____

on this _____ day of _____, 20_____.

**END OF SECTION 00440**

**SECTION 00500 AGREEMENT**

**AGENCY No. 591 Funding Code. ___ MDOT Funded _____**

**FILE No. 22274.MNB_____ CONTRACT ORDER No. _____**

## TABLE OF CONTENTS



* To be Completed With the Bidding Documents
** To Be Completed Upon Award of the Contract **

_____

**THIS AGREEMENT TO CONTRACT is made this _____ day of _____ in the year Two-Thousand And _____ (_____) by and between **THE STATE OF MICHIGAN, "Owner,"** represented by the **Director, Department** of Technology, Management and Budget, duly authorized, and _____, _____ the "**Contractor**," a corporation ____, partnership ____, individual ____, or joint venture ____ (between _____ and _____), of the State of _____, whose address is _____ _____, represented by _____, its _____, duly authorized.

The **Owner** and **Contractor**, in consideration of the mutual covenants and obligations stated in this Section 00500 Agreement and the other parts of the Contract Documents, agree as follows:

### ARTICLE 1 THE CONTRACT; THE PROJECT; THE WORK

1.1. THE CONTRACT – The contract entered between the **Owner** and **Contractor** for the furnishing and performance of the Work by the **Contractor**, which consists of the Contract Documents listed or designated in paragraphs 2.2 through 2.4.



1.2. PROJECT NAME – Detroit Garage Storm Sewer Reconstruction

1.3. THE WORK – Detroit Garage Storm Sewer Reconstruction

### ARTICLE 2 CONTRACT DOCUMENTS

2.1. The Contract Documents form the contract between the **Owner** and **Contractor** and represent the entire and final integrated agreement between the **Owner** and **Contractor** with respect to the Work. The Contract Documents are incorporated into this Agreement by this reference, and supersede all prior oral or written agreements, if any, between the **Owner** and **Contractor**. Any statement, representation, promise or inducement not set forth in the Contract Documents is null and void, and not binding on either the **Owner** or **Contractor**. The Contract Documents shall not in any way create a relationship of any kind between the **Professional** and **Contractor**, or between the **Owner** and a Subcontractor, or Supplier or any other third party. The **Professional** shall, however, be entitled to performance and enforcement of obligations under the Contract that are consistent with the **Professional's** authority and responsibilities under the Contract Documents.

2.2. The Contract Documents on the date when the **Owner** executes this Section 00500 Agreement, which are attached to this Section 00500 Agreement, consist of the following:

2.2.1. This ***Section 00500 Agreement***, fully executed by the **Owner** and **Contractor**, including the following attachments: _____ and ***Addenda*** ____ through ____.

2.2.2. ***Section 00800 Supplementary Conditions***, including _____; and ***Section 00120 Supplementary Instructions***, including ____ _____

2.2.3. ***Section 00020 Glossary***, and ***Section 00700 General Conditions***.

2.2.4. ***General Requirements***, Division 1 of the Specifications.

2.2.5. ***Divisions 2 through*** 33 ***of the Specifications***, and ***Drawings***, bearing the title: MDOT Detroit Garage Storm Sewer Reconstruction Engineering Construction Plans, dated 01-31-2025.

2.2.6. ***Section 00030 Advertisement; Section 00100 Instructions to Bidders***, including ***Attachment A–Bidder's Check List***, and ***Section 00210 Information for Bidders***.

2.2.7. ***Section 00610 Performance Bond*** and ***Section 00620 Payment Bond***, fully executed by the **Contractor** and the sureties, each enclosing separate evidence of Power of Attorney.

2.2.8. The **Contractor's *Section 00300 Bid Summary and Bid Form*** (with attachments) and ***Section 00320 Non-collusion Affidavit*** (including any revisions delivered after Bid opening).

2.2.9. The following **Contractor's *Qualification Submittals*** (post-Bid opening:) _____

2.3. Contract Documents that will be issued after the date the **Owner** executes this Section 00500 Agreement consist of:

2.3.1. ***Change Orders*** and ***Change Authorizations*** signed as provided in the Contract Documents.

2.3.2. ***Notice of Award*** and ***Notice to Proceed.***

2.4. There are no Contract Documents other than those listed or designated in this Article or added through Section 00520 Attachment A to the Agreement. The Contract Documents may be modified, as provided in Section 00700 General Conditions.

## ARTICLE 3 CONTRACT PRICE

3.1. The **Contractor** will furnish and perform the Work and accept in full payment the Contract Price of _____ _____ Dollars ($_____). The Contract Price includes only those Alternates accepted by the **Owner**, as itemized in the Notice of Award.

3.2. The Contract will include those Change Order prices (bid on Section 00300 Bid Form) accepted by the **Owner** when the **Owner** issues the Notice to Proceed or by Change Authorization.

3.3. Payments to the **Contractor** will be made based on the prices stated on the **Contractor's** Section 00300 Bid Form, subject to the terms and conditions of the Contract Documents.

## ARTICLE 4 CONTRACT TIME; LIQUIDATED DAMAGES

4.1. The periods allowed for completion of the Work, or a designated part of the Work, will be as follows:

4.1.1. The entire Work will be substantially complete in accordance with the requirements of the Contract Documents: within 180 calendar days from Notice to Proceed.

4.1.2. If separable parts of the Work shall be completed before the period allowed for Substantial Completion of the entire Work, the Contract Times for those parts of the Work will be as specified in Section 00520 Attachment A to Agreement, and as may be supplemented in the Specifications.

4.1.3. The entire Work will be complete and ready for final payment as specified in the Contract Documents: _within 255 calendar days from Notice to Proceed.

4.2. The **Owner** and **Contractor** recognize that the Contract Times are of the essence of the Contract and that the **Owner** will suffer costs and damages if the Work is not completed within the Contract Times, including any extensions in Contract Time authorized by Change Orders. Therefore, liquidated damages (in the amounts specified in paragraphs 4.2.3 through 4.2.5) will apply if the Work is not completed within the limits of the Contract Times. Liquidated damages are not a penalty, are cumulative and represent a reasonable estimate of the **Owner's** extra costs and damages, which are difficult to estimate with accuracy in advance.

4.2.1. Accordingly, if the **Contractor** fails, neglects, or refuses to complete all or any designated part of the Work within the specified Contract Time, the **Contractor** agrees to pay to the **Owner** liquidated damages and to allow, at the appropriate time, a corresponding adjustment in Contract Price.

4.2.2. If under the procedures of paragraph 4.3, the **Owner** is justified in withholding liquidated damages due to or in anticipation of late completion, the **Contractor** agrees to allow the **Owner** to deduct liquidated damages from Requests for Payment.

4.2.3. Liquidated damages for each Calendar Day that expires after the Contract Time specified in paragraph 4.1.1 for Substantial Completion of the entire Work – until the Work is substantially complete – shall be in the amount of four hundred Dollars and No/Cents ($400.00)

4.2.4. Liquidated damages for each Calendar Day that expires after each of the Contract Times designated in Section 00520 Attachment A to the Agreement – until each such part of the Work is sufficiently complete – shall be in the amounts stated in Section 00520 Attachment A to the Agreement.

4.2.5. Liquidated damages for each Calendar Day after Substantial Completion of the entire Work that expires after the Contract Time specified in paragraph 4.1.3 for completion and readiness for final payment – until the entire Work is complete and ready for final payment shall be in the amount of four hundred Dollars and No/Cents ($400.00)

**Assessment and/or Withholding of Liquidated Damages**

4.3. If the **Contractor** fails to complete the Work, or a specified part of the Work, within the corresponding Contract Time, or if at any time after the Work is eighty percent (80%) in place, the **Contractor** does not prosecute the balance of the Work with the diligence required to comply with the Contract Times, the **Contractor** shall be requested to submit a schedule recovery plan acceptable to the **Owner**. The **Contractor's** schedule recovery plan shall describe the cause of schedule slippage or delayed progress and the actions proposed and taken to recover schedule. In addition, to the extent that the **Contractor** believes that an extension in Contract Time is justified, the recovery plan shall include a request for an appropriate extension in Contract Time.

4.3.1. Within fifteen (15) Calendar Days after the **Contractor** receives any such request, the **Contractor** shall meet with the **Owner** and present the **Contractor's** written schedule recovery plan. If, upon evaluation of the **Contractors'** schedule recovery plan, and after consultation with the **Professional**, the **Owner**, in its sole discretion, determines that there is sufficient cause to withhold liquidated damages, the **Owner** may deduct from Requests for

Payment the liquidated damages then due or that would become due using the **Owner's** estimate of late completion of the Work.

4.3.2. For the purposes of returning liquidated damages, schedule recovery implementation shall not be complete until such slippage or delayed progress has been corrected and the Progress Schedule once again supports compliance with the Contract Times. Once late completion has been corrected, the **Contractor** shall be entitled to reimbursement of all liquidated damage sums previously withheld. Any such reimbursement of liquidated damages previously withheld shall not constitute a waiver of any claims that the **Owner** may otherwise have.

## ARTICLE 5 PAYMENTS TO CONTRACTOR

*5.1. The **Owner** will pay one hundred percent (100%) of the amount due upon completion of any Schedule of Value *pay item*. The **Professional** may require, for each Request for Payment, sworn statements, consent of surety, waivers of lien (from the **Contractor**, Subcontractors and Suppliers), Record Documents, guarantees, operating and maintenance manuals and such other documents required by the Contract Documents. Payment to the **Contractor** will be made within thirty (30) Calendar Days from receipt by the **Owner** of the **Professional's** certification representing to the **Owner** the amount of payment to be due to the **Contractor**.

*5.2. Processing of Requests for Payment by the **Owner** may be deferred until Work having a prior sequence, as provided in the Contract Documents, is in place and is approved.

5.3. Payments shall be subject to the terms and conditions of Section 00700 General Conditions and the other parts of the Contract Documents and shall be made less such deductions as the **Owner** and/or **Professional** determines are appropriate, as specified in paragraph 12.4 of Section 00700 General Conditions.

5.4. If any portion of the Work is funded by a federal or State agency, the **Owner** will have fifteen (15) Calendar Days after receiving those funds in which to make payment. This provision shall take effect only after the thirty (30) Calendar Day period following certification by the **Professional** has expired.

## ARTICLE 6 THE PROFESSIONAL SERVICES CONTRACTOR

6.1. The **Owner** has retained NTH Consultants, Ltd. to assume all duties and responsibilities of, and have the rights and authority assigned to, the **Professional Services Contractor** in the Contract Documents with respect to completion of the Work in accordance with the Contract Documents.

## ARTICLE 7 CONTRACTOR'S REPRESENTATIONS

7.1. The **Contractor** reiterates and makes each of the representations itemized in Article 2 of the **Contractor's** Section 00300 Bid Form. Article 2 in the **Contractor's** Section 00300 Bid Form is by this reference repeated verbatim in this Section 00500 Agreement as paragraphs 7.2 through 7.13 just as though those paragraphs had been written in this Article 7, except that the term "**Contractor**" shall replace the term "Bidder" in every instance.

## ARTICLE 8 MISCELLANEOUS

8.1. If any provision of the Contract Documents is invalid, illegal, or unenforceable, all other provisions of the Contract Documents shall remain in full force and effect. If any provision of the Contract Documents is inapplicable to any Person or circumstance, that provision shall remain applicable to all other Persons and circumstances.

8.2. It is the intent of the **Owner** and **Contractor** that all provisions of Law required to be inserted or referenced in the Contract Documents are in fact so inserted or referenced. If any provision of Law is not so inserted or referenced, or is inserted or referenced improperly, then each such provision shall be considered inserted or referenced in the Contract Documents in proper form at no increase in Contract Price and/or Contract Time.

8.3. The duties, obligations, criteria or procedure imposed by, and the rights and remedies made available in, the Contract Documents are in addition to, and not in any way a limitation of, any rights and remedies that are otherwise allowed or imposed by Law, except that in the event a specific part or detailed requirement of a provision, criterion or procedure in the Contract Documents and a specific part or detailed requirement of a provision, criterion or procedure imposed by Law conflict, the specific part or detailed requirement of such provision, criterion or procedure imposed by Law shall govern. All other specific parts or detailed requirements in the provisions, criteria or procedures imposed by Law and the Contract Documents shall remain in full force and effect and be read with the controlling specific part or detailed requirement. These provisions will be as effective as if repeated specifically in the Contract Documents in connection with each duty, obligation, right and remedy to which they apply.

8.4. The **Contractor** shall not sell, assign, transfer or otherwise convey any of the **Contractor's** rights and shall not delegate any of the **Contractor's** duties under this Agreement without the prior written consent of the **Owner** and the sureties for the **Contractor**. In its sole discretion, the **Owner** may refuse to consent to any proposed assignment or delegation. Any attempted sale, assignment, transfer, or other conveyance in violation of this paragraph shall be void and shall relieve the **Owner** of any further liability under the Contract Documents but shall not relieve the **Contractor's** sureties of any liability. If the **Owner** consents in writing to an assignment, unless specifically stated to the contrary in the consent, that assignment shall not release or discharge the **Contractor** from any duty or responsibility set forth in the Contract Documents and shall not release or discharge the **Contractor's** sureties under the Bonds required by the Contract Documents.

8.5. The **Owner** reserves the right to correct any error in any Request for Payment that may have been paid. The **Owner** reserves the right, should proof of Defective Work be discovered after final payment, to claim and recover from the **Contractor** and/or the **Contractor's** surety, sufficient sums to correct or remove and replace the Defective Work.

8.6. Any waiver by the **Owner** of any provision of the Contract Documents shall be specific and in writing and apply only to the specific matter and not to other similar or dissimilar matters. Any waiver of any breach of this Contract shall not be held to be a waiver of any other or subsequent breach.

8.7. Nothing contained in this Agreement shall in any manner authorize, empower, or constitute the **Contractor**, Subcontractors

or Suppliers (a) to act as agents of the **Owner,** (b) to assume or create any obligation or responsibility whatsoever, express, or implied, on behalf of or in the name of the **Owner**; (c) to bind the **Owner** in any manner, or (d) to make any representation, warranty, covenant, agreement, or commitment on behalf of the **Owner**. It is the intent and understanding of the parties that the **Contractor** shall perform the Work as an independent contractor. This Agreement does not create, and shall not be construed as creating, any rights enforceable by any third party.

8.8. If the **Owner** or **Contractor** suffers injury or damage to person or property because of error, omission, or act of the other, any of the other's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observation of that injury or damage. This provision is not and shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or time requirements set forth in Section 00700 General Conditions.

8.9. All computer programs which are not the subject of copyrights by third parties, and which are delivered, developed, produced, or paid for under a specific requirement of the Contract Documents and all plans, drawings, designs, specifications, technical reports, operating manuals, and other data which are delivered, developed, produced, or paid for under the Contract Documents shall be the property of the **Owner**. The **Owner** maintains all rights to such programs and deliverables, including the right to use, duplicate, and disclose the programs and deliverables, in whole or in part, in any manner and for any purpose. If any program or deliverable is copyrightable, the **Contractor** may copyright it subject to the **Owner's** rights. The **Owner** reserves a royalty-free, nonexclusive, and irrevocable license to use, duplicate, publish, and disclose such programs and deliverables, in whole or in part, and to authorize others to do so.

8.10. The **Contractor** warrants that all costs in proposals and claims for adjustments in Contract Price shall not exceed those allowed under the Contract Documents, and that proposals and claims for adjustments in Contract Price shall grant prices, terms, and warranties comparable to or better than prices, terms and warranties offered to others for similar work.

8.11. This Agreement shall be binding on the **Contractor, Owner** and their respective successors and legal representatives and, if the **Owner** has consented to an assignment or other conveyance, on all their respective assigns and delegates.

*8.12. The Contract Documents shall be governed by and construed in accordance with the Laws of the State of Michigan in effect on the date of Bid opening. Any change in Michigan Law after that date shall be binding only to the extent the **Owner** and **Contractor** agree or to the extent such change is beyond the capacity of the parties to avoid.

## ARTICLE 9 NOTICE AND SERVICE

9.1. Unless otherwise provided in the Contract Documents or consented to by the **Owner** in writing, any notice, demand, or communication shall be in writing and shall be deemed to have been given when received by the individual required to be given notice at the address designated in this Agreement. A copy of any notice, demand or notification shall be sent to the address below.

9.2. Any written notice or other written communication to the sureties shall be sufficiently given if delivered to the individual required to be given notice at the address designated in the Bond.

IN WITNESS WHEREOF, the **Owner** and **Contractor** have signed this Section 00500 Agreement in triplicate and initialed three (3) full sets of the Contract Documents. One (1) full set of the executed Contract Documents will be delivered to the **Contractor**.

THE **STATE OF MICHIGAN**
BY:

_____
**Director**, DTMB, SFA, Design and Construction
NAME:

_____
Witness:

_____
Date:

_____
Address for giving notices:

Department of Technology, Management and Budget
State Facilities Administration
Design and Construction
3111 W. St. Joseph Street
Lansing, MI 48917

THE **CONTRACTOR**
BY:

_____
Title: Date

NAME:

_____

Federal ID No. or SS No.(LAST 4 Only)_____

Telephone No.

_____
Witness:

_____
Date:

_____
Address for giving notices

## CERTIFICATE OF PRINCIPAL

(If **Contractor** is Other Than a Sole Proprietor)

I, _____, certify that I am the Secretary of the Corporation ____, or a General Partner ____ or Managing Partner ____ or Partner ____ of the partnership, named as the **Contractor** in the attached Section 00500 Agreement, that _____ _____ who signed Section 00500 Agreement on behalf of the **Contractor**, was then _____ of that corporation ___ or partnership ___; that I know the undersigned's signature, and the signature is genuine; and that Section 00500 Agreement was duly signed, sealed and attested for and on behalf of that corporation ___ partnership ___ by authority of its governing body ___ or partners ___

_____

Signed by the Secretary or Other Authorized Officer of the Corporation Date
or By General Partner or Managing Partner or Authorized Partner Certifying

_____

Name of the Corporation or True Name of the Partnership

Telephone No. _____

(Corporate Seal)

## VERIFICATION

(by **Contractor**)

STATE OF _____ )
)
COUNTY OF _____ )

Before me, a Notary Public duly commissioned, qualified and acting, personally appeared (enter name of person who signed Section 00500 Agreement on behalf of the Bidder), _____ to me well known, who being by me first duly sworn upon oath, says that he/she is the Attorney-In-Fact for (enter the **Contractor's** name) _____ _____ and that he/she has been authorized by (enter name of individual, partnership name, or that governing body of the Bidder named in the attached corporate resolution) _____ to execute Section 00500 Agreement on behalf of the named **Contractor** in favor of the STATE OF MICHIGAN.

Subscribed and sworn before me this _____ day of _____, A.D., 20_____.

_____

Notary Public, State of _____

My Commission Expires: _____

## RESOLUTION OF CORPORATE AUTHORITY
(If **Contractor** is a Corporation)

I, _____, Corporate Officer of _____, a _____
(Print or type) Corporation (the "Company") (Indicate State)

DO HEREBY CERTIFY that the following is a true and correct excerpt from the minutes of the meeting of the Board of Directors, wherein a quorum was present, duly called and held on _____ and that the same is now in full force and effect:

"RESOLVED, that the Chairman, the President, each Vice President, the Treasurer, and the Secretary and each of them, hereby is authorized to execute and deliver, in the name and on behalf of the Company and under its corporate seal or otherwise, any agreement or other instrument or document in connection with any matter or transaction that shall have been duly approved; the execution and delivery of any agreement, document, or other instrument, or document in connection with any matter or transaction that shall have been duly approved; the execution and delivery of any agreement, document, or other instrument by any of such officers to be conclusive evidence of such approval."

I FURTHER CERTIFY that _____ is Chairman of the Board, _____ is President, _____ is Treasurer, and _____ is Secretary.

I FURTHER CERTIFY that any of the officers of the Company named in this Resolution of Corporate Authority are authorized to execute or guarantee and commit the Company to the conditions, obligations, stipulations, and undertakings contained in the Contract Documents for File No. _____ Work _____, _____ and that all necessary corporate approvals have been obtained in relationship thereto.

IN WITNESS THEREOF, I have set my hand this _____ day of _____, 20___.

CORPORATE SEAL

_____
Corporate Officer's Signature

_____
Title

Telephone No. _____

## CERTIFICATE OF PARTNERSHIP AUTHORITY
(If **Contractor** is a Partnership)

I, _____, General Partner in _____, a _____
(Print or Type) Partnership (the "Partnership") (Indicate State)

DO HEREBY CERTIFY that I am a General Partner in the Partnership formulated pursuant to a Partnership Agreement dated _____, 20___, and that the following is a true and correct excerpt from the minutes of the meeting of the General Partnership held on _____ and that the same is now in full force and effect:

"That each General Partner is authorized to execute and deliver, in the name and on behalf of the Partnership, any agreement or other instrument or document in connection with any matter or transaction that shall have been duly approved; the execution and delivery of any agreement, document, or other instrument, or document in connection with any matter or transaction that shall have been duly approved; the execution and delivery of any agreement, document, or other instrument by a General Partner to be conclusive evidence of such approval."

I FURTHER CERTIFY that any of the aforementioned General Partners of the Partnership are authorized to execute or guarantee and commit the assets of the Partnership to the conditions, obligations, stipulations, and undertakings contained in the Contract Documents for File No. _____ Work _____, _____ and that all necessary partnership approvals have been obtained in relationship thereto.

IN WITNESS THEREOF, I have set my hand this _____ day of _____, 20___.

_____
General Partner's Signature

_____
Title

Telephone No. _____

**END OF SECTION 00500**

**SECTION 00520 ATTACHMENT "A" TO AGREEMENT**

**PROFESSIONAL** –NTH Consultants, Ltd.
WORK – MDOT Garage Storm Sewer Reconstruction
AGENCY No. – 591 FUNDING CODE: __ MDOT Funded _____

FILE No. 22274.MNB CONTRACT ORDER No. Y_____

This Section 00520 Attachment A to Agreement supplements those specific provisions in Section 00500 Agreement designated below. All other provisions in Section 00500 Agreement that are not so supplemented remain in full force and effect. The terms "Agreement", "Contract Documents" and "Contract" have specific intents and meanings assigned as stated in Section 00500 Agreement and Section 00020 Glossary.

**SUPPLEMENTARY TERMS AND CONDITIONS TO**
**ARTICLE 4 CONTRACT TIME; LIQUIDATED DAMAGES**

The following separable parts of the Work will be completed, as specified in the Contract Documents:
(a)
within _____ (___) Days from the date when the Contract Time commences to run, or on or before _____, 20____.
(b)
within _____ (___) Days from the date when the Contract Time commences to run, or on or before _____, 20____.
(c)
within _____ (___) Days from the date when the Contract Time commences to run, or on or before _____, 20____.

These interim Contract Times are of the essence so as to: (a) not Delay work by others as provided in Article 13 of the General Conditions; (b) conform to the sequences of Work indicated in or required by the Contract documents; and (c) comply with the coordination requirements of the Contract Documents.

The **Owner** and **Contractor** recognize that the Contract Time(s) specified in this Attachment A is(are) of the essence to this Agreement in that the **Owner** will suffer costs and damages if the Work is not completed within the Contract Time(s) plus any extensions authorized in accordance with Section 00700 General Conditions. Accordingly, liquidated damages will apply based on the following schedule: (a) ____ _____ Dollars and No/Cents ($_____); (b) _____ Dollars and No/Cents ($ _____); and (c) _____ Dollars and No/Cents ($_____) for each Calendar Day that expires after each of the respective Contract Times specified in this Section 00520 Attachment A to the Agreement for the completion of each of those designated parts of the Work, respectively, until each of those parts of the Work is complete. Any deduction by the **Owner** of liquidated damages from Requests for Payment shall be undertaken only after consultation with the **Professional** and shall be subject to the procedures outlined in paragraph 4.3, Section 00500 Agreement.

**END OF SECTION 00520**

**SECTION 00610 PERFORMANCE BOND**

**AGENCY No. 591 Funding Code: _ MDOT Funded _____**

**FILE No. 22274.MNB SURETY COMPANY REFERENCE No. _____**

"The **Contractor**," _____, a corporation ___, individual ___, partnership ___, joint venture ___ of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the Surety," _____, of the State of _____, as surety, are held and bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars ($_____), for the payment of which the **Contractor** and Surety hereby bind themselves, their respective heirs, successors, legal representatives and assigns, jointly and severally, in compliance with 1963 PA 213, as amended, MCL 129.201 et seq.

The **Contractor** has entered into "the Contract" with the **Owner** for _____ _____, "the Work," covered by the Contract Documents, which are incorporated into this Performance Bond by this reference.

If the **Contractor** faithfully performs and fulfills all the undertakings, covenants, terms, conditions, warranties, indemnifications and agreements of the Contract Documents within the Contract Time (including any authorized changes, with or without notice to the Surety) and during the Correction Period, and if the **Contractor** also performs and fulfills all the undertakings, covenants, terms, conditions, warranties, indemnifications and agreements of any and all duly authorized modifications of the Contract Documents, then THIS OBLIGATION IS VOID, OTHERWISE TO REMAIN IN FULL FORCE AND EFFECT.

A. No change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision) releases the Surety of its obligations under this Section 00610 Performance Bond. The Surety expressly waives notice of any such change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision).

B. This Section 00610 Performance Bond shall be solely for the protection of the **Owner** and its successors, legal representatives or assigns. The prevailing party in a suit on this Bond is entitled to recover as part of that party's judgment reasonable attorneys' fees.

C. It is the intention of the **Contractor** and Surety that they shall be bound by all terms and conditions of the Contract Documents (including, but not limited to Article 14 of Section 00700 General Conditions and this Section 00610 Performance Bond). However, this Section 00610 Performance Bond is executed pursuant to 1963 PA 213, as amended, MCL 129.201 et seq., and if any provision(s) of this Section 00610 Performance Bond is/are illegal, invalid, or unenforceable, all other provisions of this Section 00610 Performance Bond must nevertheless remain in full force and effect, and the **Owner** shall be protected to the full extent provided by 1963 PA 213, as amended, MCL 129.201 et seq.

**IMPORTANT**: The Surety shall be authorized to do business in the State of Michigan by the Department of Licensing and Regulatory Affairs, must be listed on the current U.S. Department of the Treasury Circular 570, and, unless otherwise authorized by the **Owner** in writing, must have at least an A– Best's rating and a Class VII or better financial size category per current A. M. Best Company ratings.

Name, Address and Telephone of the Surety:

Address and Telephone of Agent, who is either a resident of, or whose principal office is maintained in, the State of Michigan

Signed and sealed this _____ day of _____, 20_____.

THE **CONTRACTOR**: (Print Full Name and Sign)
WITNESS _____

By: _____
Name & Title: _____
Telephone No. _____

THE SURETY: (Print Full Name and Sign)

Agent: _____

WITNESS _____

Attorney-in-Fact: _____
Telephone No. _____

Email: _____

**END OF SECTION 00610**

**SECTION 00620 PAYMENT BOND**

**AGENCY No. 591 Funding Code: _ MDOT Funded ____**

**FILE No. 22274.MNB SURETY COMPANY REFERENCE No._____**

"The **Contractor**," _____, a corporation ___, individual ___, partnership ___, joint venture ___ of the State of _____, qualified to do business in the State of Michigan, as Principal, and "the Surety," _____, of the State of _____, as surety, are held and bound unto the State of Michigan, "the **Owner**," as Obligee, in the amount of _____ Dollars ($_____), for the payment of which the **Contractor** and Surety bind themselves, their respective heirs, successors, legal representatives and assigns, jointly and severally, in compliance with 1963 PA 213, as amended, MCL 129.201 et seq.

The **Contractor** has entered into "the Contract" with the **Owner** for _____ _____, "the Work," covered by the Contract Documents, which are incorporated into this Payment Bond by this reference.

If the **Contractor** promptly pays all claimants supplying labor or materials to the **Contractor** or to the **Contractor's** Subcontractors in the prosecution of the Work, then THIS OBLIGATION IS VOID, OTHERWISE TO REMAIN IN FULL FORCE AND EFFECT.

A. All rights and remedies on this Section 00620 Payment Bond shall be solely for the protection of all claimants supplying labor and materials to the **Contractor** or the **Contractor's** Subcontractors in the prosecution of the Work and must be determined in accordance with Michigan Law.

B. No change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision) must release the Surety of its obligations under this Section 00620 Payment Bond. The Surety hereby expressly waives notice of any such change in Contract Price or Contract Time, "or equal" or substitution or modification of the Contract Documents (including addition, deletion, or other revision).

C. It is the intention of the **Contractor** and Surety that they must be bound by all terms and conditions of the Contract Documents (including, but not limited to this Section 00620 Payment Bond). However, this Section 00620 Payment Bond is executed pursuant to 1963 PA 213, as amended, MCL 129.201 et seq., and if any provision(s) of this Section 00620 Payment Bond is/are illegal, invalid, or unenforceable, all other provisions of this Section 00620 Payment Bond must nevertheless remain in full force and effect, and the **Owner** must be protected to the full extent provided by 1963 PA 213, as amended, MCL 129.201 et seq.

**IMPORTANT**: The Surety shall be authorized to do business in the State of Michigan by the Department of Licensing and Regulatory Affairs, must be listed on the current U.S. Department of the Treasury Circular 570, and, unless otherwise authorized by the **Owner** in writing, must have at least an A– Best's rating and a Class VII or better financial size category per current A. M. Best Company ratings.

Name, Address and Telephone of the Surety:

Address and Telephone of Agent, who is either a resident of, or whose principal office is maintained in, the State of Michigan

Signed and sealed this _____ day of _____, 20_____.

THE **CONTRACTOR**: (Print Full Name and Sign)
WITNESS _____

By: _____
Name & Title: _____

Telephone No. _____
Agent: _____

THE SURETY: (Print Full Name and Sign)

WITNESS _____

Attorney-in-Fact: _____

Telephone No. _____

Email: _____

**END OF SECTION 00620**

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## STATE OF MICHIGAN MODEL

Developed from FORMSPEC™ Michigan Model



## ARTICLE 1 INTERPRETATIONS

### 1.1 Section 00020 Glossary:

1.1.1. Section 00020 Glossary assigns specific intent and meanings to capitalized terms and to other defined terms used in this Section 00700 General Conditions, Section 00500 Agreement, Section 00520 Attachment A to the Agreement, Section 00610 Performance Bond, Section 00620 Payment Bond, and Section 00800 Supplementary Conditions.

1.1.2. Section 00020 Glossary also provides specific rules for construing any reference to any Article or paragraph that is made in this Section 00700 General Conditions.

### 1.2 Intent of the Contract Documents:

1.2.1. The intent of the Contract Documents is to describe the *entire* Work, including its various parts, to the extent necessary for the **Contractor** to discharge its obligation to execute and complete the Work in accordance with the Contract Documents. The Contract Documents are complementary; what is required by one shall be as binding as if required by all Contract Documents.

1.2.2. The *entire* Work required by the Contract Documents includes Work, which is reasonably inferable from the Contract Documents or from prevailing custom and trade usage. The **Contractor** shall provide any Work reasonably inferable to the extent such Work is required to properly complete the installation of other Work expressly shown or specified in the Contract Documents. If the **Contractor** disagrees that Work that is not expressly shown or detailed in the Contract Documents is Work reasonably inferable, the **Contractor** shall proceed in accordance with the provisions of paragraph 10.1.3.

1.2.3. The breakdown of the Work by Divisions and Sections, or the identification of any Drawing, shall not delineate or be construed to delineate Work to be performed by any trade. The breakdown shall not control the manner in which the Work may be divided by the **Contractor** among Subcontractors and Suppliers.

*1.2.4. Reference to the State Construction Code Act of 1972, 1972 PA 230, as amended, MCL 125.1501 et seq., or to standard specifications, manuals or codes of any technical society, organization, or association, whether specifically or by implication, means the issue in effect on the date of Bid opening, unless otherwise expressly stated. Work indicated in or required by the Contract Documents that is above standards set in the State Construction Code shall be provided to the higher standard.

1.2.5. The provisions of the Contract Documents shall govern over any standard specification, manual or code of any technical society, organization, or association. Unless otherwise provided in the Contract Documents, words with an accepted technical or trade meaning used to describe any Work shall be interpreted in accordance with that meaning.

1.2.6. If any Work indicated in, or required by, the Contract Documents is above the standards set by any Law applicable to the Work and the Project, the higher standard shall govern.

1.2.7. The terms "the Contract Documents," "as specified in the Contract Documents," "in accordance with the Contract Documents" or such other similar terms shall be construed as including all valid Change Orders and Change Authorizations.

1.2.8. "Execution of the Work" and “shall provide” includes the furnishing and/or performance of the Work. "*Work*" as in "Unit Price Work," or “any Work” or "acceptable Work," etc. refers to a specific part(s) of the Work.

1.2.9. Subject to the **Contractor's** continuing responsibilities for the acts of Subcontractors and Suppliers, whenever in the Contract Documents the term "the **Contractor**" is used concerning any action, obligation, cost, or event, it shall cover, even if not expressly stated, actions or obligations or costs of, or events involving, any Subcontractor, Supplier, or anyone for whom any of them may be liable, unless the context requires otherwise.

1.2.10. Use of the terms "as ordered," "as directed," "as required," "as allowed," "as approved" or similar terms, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or similar adjectives, to describe a requirement, direction, review, or judgment of the **Professional** or **Owner** as to the Work will be solely to evaluate the Work for compliance with the Contract Documents. No use of any such term or adjective, or provision of any standard specification, manual or code (whether expressly incorporated by reference in the Contract Documents or not), or Suppliers' instructions, shall be effective to (a) change the duties and responsibilities of the **Owner** or **Professional** from those assigned in the Contract Documents, (b) assign to the **Owner** or **Professional** any duty or authority to supervise or direct the furnishing or performance of the Work or assume responsibility contrary to the provisions of the Contract Documents.

1.2.11. A provision stating "the **Contractor** shall bear its proportionate share of the Delay and costs" shall be construed as entitling the **Owner** to an appropriate decrease in Contract Price and Contract Time for all the **Owner's** direct, indirect, and consequential costs and damages that are attributable to the **Contractor**.

1.2.12. Contract Time computations shall be made in Calendar Days. The Progress Schedule shall be in the form of a Critical Path Method schedule, Total Float and Contract Float values stated in Business Days shall be converted to Calendar Days when used for the purpose of calculating changes in Contract Time.

1.2.13. Any computation of a Contract Time which adds Calendar Days to a date shall include both the first and last Day. Any computation of a notice period shall exclude the first Day and include the last Day. In any case, if the computed Day falls on a non-Business Day, it shall be omitted from the computation.

1.2.14. In the Contract Documents, the terms "substantially completed" and "substantially complete" have in context the same meaning as Substantial Completion.

**1.3 Priority of the Contract Documents:**

1.3.1. Whenever an issue of priority involves two Sections within the Contract Documents, the following will apply: Unless the **Owner** and **Contractor** mutually agree otherwise, a Section of the Contract Documents will *supersede* another *conflicting* Section if the *superseding* Section is listed in paragraph 2.2 of Section 00500 Agreement ahead of the *conflicting* Section.

1.3.2. Whenever an issue of priority involves Work called for in the technical Specifications or Drawings – figured dimensions shall govern scaled dimensions, detail Drawings shall govern general Drawings and Drawings shall govern Submittals. Whenever specifications, dimensions, notes, schedules, or details conflict (whether within the Specifications or Drawings, or between the Specifications and Drawings, or between Change Order Drawings and the Drawings), the **Contractor** shall be required to provide the higher performance requirement only to the extent such outcome results in Work reasonably inferable.

**1.4 Interpretation of Indemnification Provisions:**

1.4.1. Paragraphs 1.4.2 and 1.4.3 will be as effective as if repeated in paragraphs 4.5.2, 4.6.1, 4.9.1, 10.4.4, 13.3.1 and in any other paragraph requiring the **Contractor** to defend, indemnify and hold harmless the **Owner** and **Professional**.

1.4.2. Any indemnification provision requiring the **Contractor** to defend, indemnify and hold harmless the **Owner** and **Professional** against all claims, or covering liability of the **Owner** or **Professional**, shall include claims caused in part by the negligence or other liability-creating conduct or omission of the **Contractor**.

1.4.3. The terms "against all claims" in any such obligation shall be construed as covering all claims, of whatever type and nature, and all judgments, costs, losses, and damages, whether direct, indirect, or consequential (including, but not limited to, charges of architects, engineers, attorneys and others and all court, hearing, and any other dispute resolution costs).

**1.5 Additional Interpretations:**

1.5.1. The term "the **Professional**" shall be construed as covering, even if not expressly stated, the **Professional's** consultants, agents, and employees. This interpretation shall not be construed as relieving the **Professional** of its sole responsibility for the performance of the **Professional's** obligations and responsibilities, whether performed by the **Professional** directly or through any consultant, agent, or employee.

1.5.2. The expression "any act or omission within the control of" shall include, but is not limited to, the fault or negligence of the party involved and any other act, cause, and event for which that party is responsible. The expression "any cause beyond the control of" shall include any act or omission not within the reasonable control of the party involved and any other act, cause, and event for which that party is not responsible.

1.5.3. Whenever in the Contract Documents, the term "first tier" is used concerning a Subcontractor or Supplier, it means a Subcontractor or Supplier having a direct Sub agreement with the **Contractor**. Relatedly, the term "lower tier" refers to a Subcontractor or Supplier having a direct Sub agreement with another Subcontractor.

1.5.4. The expression "materials and/or equipment" shall not be construed to equate materials with equipment, but rather shall be interpreted as a general reference to materials or equipment, whichever actually applies. The term "stored materials" shall include materials and equipment. Where a differentiation between materials or equipment is necessary, such as for payments for approved equipment Shop Drawings, use of the term "equipment" shall exclude materials. In any such case, examples of equipment shall be conveying equipment, tanks, pumps, vessels, fans, boilers, air handling units, heat exchangers, compressors, incineration equipment, motor control centers, switchgears, transformers, control panels and so forth; and such components as pipe fittings and specialties, valves, ductwork, plumbing fixtures, cable tray, conduit and cable, electrical fixtures, panel boards and so forth shall be materials and not equipment.

1.5.5. The term "registered mail" includes registered U.S. mail and certified U.S. mail with return receipt requested. The term "hand delivered" includes delivery by private carriers.

1.5.6. The term "self-performed Work" means Work performed by the **Contractor**, as opposed to Work performed by a Subcontractor, which is referred to as "Subcontractor Work."

1.5.7. An "early completion" Progress Schedule is a **Contractor**-prepared Revision Progress Schedule Submittal that anticipates completion of the entire Work, or of any portion of the Work having a separate, specified Contract Time, ahead of the correspondingly specified Contract Time.

**1.6 Ownership and Use of the Contract Documents:**

1.6.1. Neither the **Contractor** nor any Subcontractor or Supplier shall have or acquire title to or ownership rights in any of the Drawings, Specifications or documents identified in Section 00210 Information for Bidders, and they shall not reuse any of them on extensions of the Project or any other project without prior written consent of the **Owner** and **Professional**.

1.6.2. The **Contractor**, Subcontractors and Suppliers are granted a limited license to use and reproduce parts of the Contract Documents and those documents identified in Section 00210 Information for Bidders as appropriate for their use in the furnishing and performance of their Work. All copies of the Drawings and Project Manual and other documents made under this license shall retain all copyright and trademark notices, if any.

**1.7 Copies of the Contract Documents:**

1.7.1. The **Owner** will furnish, at no cost to the **Contractor**, one (1) electronic copy of the Drawings and Project Manual. If the **Contractor**, or the Contractor's Subcontractors or Suppliers request hard copy sets, reproduction of these documents will be the responsibility of the **Contractor**.

## ARTICLE 2 THE OWNER – GENERAL PROVISIONS

**2.1 Availability of Lands, Areas, Properties and Facilities:**

2.1.1. The Contract Documents indicate the lands, areas, properties, and facilities upon which the Work is to be performed and those rights-of-way and easements for access to the site furnished by the **Owner**. Easements for permanent structures or for permanent changes in any existing lands, areas, properties, and facilities will be obtained by the **Owner**, unless otherwise expressly stated elsewhere in the Contract Documents.

2.1.2. The **Contractor** shall obtain, at no increase in Contract Price or Contract Time, any other lands, areas, properties, facilities, rights-of-way, and easements the **Contractor** requires for temporary facilities, storage, disposal of spoil or waste material or any other such purpose. If public property, the **Contractor** shall obtain all required permits from the federal agency, State agency, Political Subdivision or Public Utility with jurisdiction. If private property, the **Contractor** shall obtain prior permission by written agreement. The **Contractor** shall submit copies of the permits and written agreements to the **Owner**.

**2.2 Reference Points; Base Lines and Benchmarks:**

2.2.1. Unless noted otherwise, the **Owner or Professional** will provide engineering surveys to establish reference points for construction that the **Professional** considers necessary for the **Contractor** to proceed with the Work. The **Contractor** shall be responsible for surveying and laying out the Work from those reference points. The **Contractor** shall be responsible for protecting and preserving those reference points as well as any base lines and benchmarks provided for the Work.

2.2.2. The **Contractor** shall make no changes on any reference points, base lines, and benchmarks without the **Professional's** prior written approval. The **Contractor** shall report to the **Professional** whenever any reference point, base line or benchmark is lost, destroyed, or requires relocation. The **Contractor** shall replace and relocate any lost or destroyed reference points accurately, with professionally, licensed personnel, if so, directed by the **Professional**.

2.2.3. The **Contractor** shall bear its proportionate share of the Delay and costs resulting from any loss, destruction, replacement and/or relocation of reference points, base lines and/or benchmarks, to the extent any such loss, destruction, replacement and/or relocation results in whole or in part from any act or omission within the control of the **Contractor**.

**2.3 Stop Work Order:**

2.3.1. The **Owner** may order the **Contractor** in writing to stop the Work, in the whole or in part, in the event any of these situations occur: (a) any Work is Defective, (b) any Work, when completed, will not conform to the Contract Documents, (c) any materials or equipment are unsuitable, or (d) any workers are insufficiently skilled. The **Contractor** shall bear its proportionate share of the Delay and costs resulting from any such stop Work order unless the **Contractor** is/was not at fault.

2.3.2. If the **Contractor** is/was not at fault, the **Owner** will amend the Contract Documents to provide for any adjustments in Contract Price and/or Contract Time made necessary by any resulting Delay which is unreasonable under the circumstances. This authority to stop the Work or any Work shall not create or impose any duty or responsibility on the **Owner** to exercise such authority for the benefit of the **Contractor** or of any Subcontractor, Supplier, surety to any of them or any other third party.

**2.4 Limitations on the Owner's Responsibilities:**

2.4.1. The **Owner** is not responsible for the **Contractor's** Means and Methods, safety precautions and programs related to safety, or the **Contractor's** failure to execute the Work in accordance with the Contract Documents. Nor is the **Owner** responsible for any act or omission of the **Contractor** or of any Subcontractor, any Supplier or anyone for whose acts the **Contractor** or any Subcontractor or Supplier may be liable.

2.4.2. The **Owner** is not responsible for verifying whether the **Contractor's** Progress Schedule Submittals, any certificates and/or policies of insurance or any technical Submittals are in accordance with the Contract Documents, or for verifying their accuracy or completeness in any way.

2.4.3. Neither the **Owner's** authority to review any of those Submittals, nor the **Owner's** decision to raise or not raise any objections about any such Submittals, shall create or impose any duty or responsibility on the **Owner** to exercise any such authority or decision for the benefit of the **Contractor**, any Subcontractor or Supplier, any surety to any of them or any other third party.

**2.5 Additional General Provisions:**

2.5.1. Written communications from the **Owner** to the **Contractor** will generally be issued through the **Professional**. If there is need to issue communications directly, a copy will be sent concurrently to the **Professional**. Written communications from the **Contractor** to the **Owner** may be issued directly to the **Owner** or through the **Professional** if such is more appropriate. Any such communication shall also include concurrent copy of both parties.

2.5.2. The **State Facilities Administration** Representative shall be the representative for the **Owner.** The **State Facilities Administration** Representative may be represented on-site by a Field Representative(s). Neither the **State Facilities Administration** Representative nor the Field Representative shall have authority to interpret the requirements of the Contract Documents. Unless delegated by specific written notice from the **Owner**, the Field Representative does not have any authority to order any changes in the Work or authorize any adjustments in Contract Price or Contract Time.

**2.6 Partnering Charter:**

2.6.1. If the Contract Documents indicate the **Owner's** intent to implement a bilateral partnering charter, unless the **Contractor** declines in writing, the **Contractor** shall cooperate with the **Owner** in implementing such a partnering charter for the Contract. Unless the possibility is expressly allowed for in the Contract Documents, no provision, requirement, or other aspect of the Contract Documents shall be open for change, revision, or modification in any such partnering charter.

## ARTICLE 3 THE PROFESSIONAL – GENERAL PROVISIONS

**3.1 Owner's Representative:**

3.1.1. The **Professional** shall be the **Owner's** representative during the Contract Time period. The **Professional's** duties, responsibilities and limits of authority set forth in the Contract Documents shall not be changed without the prior written consent of both the **Owner** and **Professional.**

3.1.2. The **Professional** will make On-Site Inspections at intervals appropriate to the stages of the Work to observe the quality and quantity of progress and completed Work; to determine actual quantities of Unit Price Work completed by the **Contractor** and to determine whether the Work is being executed so that the Work, when completed, will be in accordance with the Contract Documents. Based on the On-site Inspections, the **Professional** will endeavor to guard the **Owner** from Defective Work and to keep the **Owner** informed of the progress of the Work.

3.1.3. If the **Professional** assigns Resident Project Representatives, their duties, responsibilities, and limits of authority will be given in the Contract Documents or at the pre-construction conference. Unless delegated by specific written notice from the **Owner**, the Resident Project Representative does not have any authority to order any changes in the Work or authorize any adjustments in Contract Price or Contract Time.

3.1.4. The **Professional** will have authority to disapprove or reject Work that the **Professional** believes to be Defective, and to require inspection or testing of any Work, whether or not such Work is fabricated, installed, or completed. The **Contractor** shall take prompt corrective action upon receiving any Defective Work notice from the **Professional**.

3.1.5. On-Site Inspections by the **Professional** and/or Resident Project Representatives shall not create or impose any duty on the **Professional** or Resident Project Representatives to make the On-Site Inspections for the benefit of the **Contractor** or any other third party. On-Site Inspections will not relieve the **Contractor** from its obligation to provide the Work in accordance with the Contract Documents or represent acceptance of Defective Work.

3.1.6. Inspections by the Field Representative(s) shall not create or impose any duty on such Field Representative to make the observations for the benefit of the **Contractor** or any other third party. Any such inspection will not relieve the **Contractor** from its obligation to provide the Work in accordance with the Contract Documents or represent acceptance of Defective Work.

**3.2 Clarifications and Interpretations:**

3.2.1. The **Professional** will issue with reasonable promptness written clarifications or interpretations as the **Professional** may determine necessary or in response to a **Contractor** written request for interpretation. If the **Contractor** believes that a written clarification or interpretation issued by the **Professional** justifies an adjustment in Contract Price or Contract Time, the **Contractor** shall promptly notify the **Professional** in writing before proceeding with the Work Involved.

3.2.2. In any such case, if the **Contractor** is properly authorized in writing to proceed with the Work Involved before full agreement is reached on the extent of any such adjustments (if any are determined to be due at all), the **Contractor** shall furnish to the **Professional**, upon request from the **Professional**, those actual cost Records specified in paragraphs 11.4 and 11.5.

**3.3 Minor Variations and No-Cost Changes; Minor Delays:**

3.3.1. The **Professional** may authorize minor variations in the Work, order no-cost changes consistent with the Contract Documents or cause minor Delay if, in the **Professional's** judgment, such variation, no-cost change or Delay does not justify any adjustment in Contract Price or Contract Time. Minor variations will be ordered in writing; no-cost changes will be authorized by Change Authorization. If the **Contractor** believes any minor variation or no-cost change justifies an increase in Contract Price or Contract Time, the **Contractor** shall promptly notify the **Professional** in writing before proceeding with the Work Involved and follow the procedures in paragraph 3.2. Notice requirements for minor Delays are provided in paragraph 8.7.4.

**3.4 Determinations by the Professional:**

3.4.1. The **Professional** will be the interpreter of the requirements of the Contract Documents and, in such capacity, will render determinations on the acceptability of the Work. Notices, proposals, claims, or other matters relating to the acceptability of the Work, the interpretation of the requirements of the Contract Documents or any adjustment in Contract Price or Contract Time shall be referred to the **Professional** in writing requesting a formal, written determination, which the **Professional** will render within a reasonable time. If the **Contractor** disagrees with any such

**Professional** determination, the **Contractor** may deliver notice of a claim and a claim submittal within thirty (30) Calendar Days in accordance with the procedures and within the deadlines set forth in Article 15 Disputes.

3.4.2. The rendering of any interpretation or of any determination on any notice, proposal, claim, or other matter relating to the acceptability of the Work or to any adjustment in Contract Price or Contract Time will be a prerequisite to the exercise by the **Contractor** of any rights or remedies the **Contractor** may otherwise have under the Contract Documents or by Law concerning any such issue.

**3.5 Limitations on the Professional's Responsibilities:**

3.5.1. The **Professional's** authority to act under this Article 3 or elsewhere in the Contract Documents, or any decision made by the **Professional** in good faith to exercise or not to exercise such authority, shall not give rise to any duty or responsibility of the **Professional** to the **Contractor**, to any Subcontractor or any Supplier, to any surety or to any third party.

3.5.2. The **Professional** is not responsible for the **Contractor's** Means and Methods, safety precautions and programs related to safety, or for the **Contractor's** failure to execute the Work in accordance with the Contract Documents. Furthermore, the **Professional** is not responsible for any act or omission of the **Contractor** or of any Subcontractor, Supplier, or anyone for whose acts the **Contractor** or any Subcontractor or Supplier may be liable.

## ARTICLE 4 CONTROL OF WORK – GENERAL PROVISIONS

**4.1 Review of the Contract Documents:**

4.1.1. Before undertaking each part of the Work, the **Contractor** shall study and compare the Contract Documents with each other and against manufacturers' recommendations for installation and handling. Before undertaking each part of the Work, the **Contractor** shall verify dimensions and take field measurements, and the **Contractor** shall coordinate the location, dimensions, access, fit, completeness, etc. of dependent Work. The **Contractor** shall promptly notify the **Professional** in writing of any conflict, error or omission in the Contract Documents and deviation from manufacturers' recommendations for installation and handling discovered.

4.1.2. The **Contractor** shall bear its proportionate share of the Delay and costs resulting from any Work undertaken before apprising the **Professional** and/or obtaining a written clarification or interpretation from the **Professional,** if the **Contractor** knows or has reason to know that any such Work (a) involves a conflict, error or omission, or (b) is subject to a specified Means and Method which is inappropriate, unworkable or unsafe, or (c) is subject to a specified method of installation, performance or test procedure and/or result which is contrary to the recommendations provided by or for the respective manufacturer.

**4.2 Management, Supervision and Personnel:**

4.2.1. The **Contractor** shall manage, supervise, and direct the Work competently, applying the management, supervision, skills, expertise, scheduling, coordination, and attention necessary to provide the Work in accordance with the Contract Documents, while insuring timely and unhindered access to the site. The **Contractor** shall be responsible for any Means and Methods unless a specific Means and Method is indicated in or required by the Contract Documents. The **Contractor** shall verify that completed Work complies with the Contract Documents, all approved Submittals and all clarifications and interpretations.

4.2.2. The **Contractor** shall maintain a competent, full-time superintendent on the Work at all times during its progress. The superintendent shall be the **Contractor's** representative at the site and shall have authority to act on behalf of the **Contractor**. The Superintendent shall not be assigned or replaced without the **Owner's** consent. If the **Owner**, in the reasonable exercise of its discretion, objects to the superintendent, the **Contractor** shall use a replacement superintendent at no increase in Contract Price or Contract Time. All communications given to the superintendent shall be as binding as if given to the **Contractor**. The DTMB Superintendent Designation form must be completed by the Contractor and submitted before beginning any work.

4.2.3. The **Contractor** shall provide competent, suitably qualified personnel to survey and lay out the Work. As part of this responsibility, the **Contractor** shall engage a registered land surveyor to accurately locate base lines and Project elevations. The **Contractor** shall be required to furnish certifications that lines and grades for all concrete slabs were checked before and after placing of concrete, and that final grades are as required by the Contract Documents.

4.2.4. The **Contractor** shall provide competent and suitably qualified trade foremen and craft workers to construct the Work, in all cases as required by the Contract Documents. At all times, the **Contractor** shall maintain good discipline and order at the site.

4.2.5. Whenever activities of the **Contractor** are carried out beyond the limits of the site or the indications of temporary fences or barricades, the **Contractor** shall schedule trenching, utility Work, site development, landscaping and all other activities in the way that will cause minimum disturbance to or interference with adjoining property, service to the public or the normal operation of the **Owner** or others affected by such activities.

4.2.6. If a Means and Method is indicated in, or required by, the Contract Documents, a substitute Means, and Method may be used by the **Contractor** only after obtaining the **Professional's** approval that it meets the applicable criteria in paragraph 5.2 without increasing Contract Price or Contract Time. If any such substitution causes earlier completion of the Work, the **Owner** and **Contractor** may negotiate an appropriate shortening in Contract Time, a level of liquidated damages appropriate to the shortened Contract Time, and a decrease in the Contract Price. If the **Owner** and **Contractor** are unable to agree on the extent of any such adjustments, the **Owner** may deliver a claim in accordance with the procedures and within the deadlines set forth in Article 15.

4.2.7. The **Contractor** shall post appropriate construction signs to advice the occupants and visitors of occupied facilities of the limits of construction work areas, hardhat areas, excavations, construction parking and staging areas, etc.

**4.3 Materials and Equipment:**

4.3.1. Unless otherwise specified in the Contract Documents, the **Contractor** shall furnish and be responsible for all materials, equipment, transportation, construction equipment, tools, supplies, fuel, utilities, water for flushing and testing, temporary facilities and all other facilities and incidentals necessary for the furnishing and

performance, which includes, without limitation, the testing and completion of the Work.

4.3.2. All materials and equipment shall be of good quality, free of defect and new, unless otherwise allowed in the Contract Documents. For each material and equipment, the **Contractor** shall provide complete information on preventive maintenance, operating requirements, parts lists, ordering of parts and other applicable conditions. Materials and equipment shall be protected against any damage at all times so that they remain new.

4.3.3. If required for the **Professional's** acceptance of any materials or equipment, the **Contractor** shall furnish satisfactory evidence (which shall include test procedures and reports of required tests) as to the kind and quality of the materials and equipment. Materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned following the manufacturer's and Suppliers' instructions, except as otherwise provided in the Contract Documents.

4.3.4. Paragraph 7.3, Section 00100 Instructions to Bidders, dealing with materials and equipment *listed* in Schedule 1.6 of Section 00440 Schedule of Materials and Equipment is made part of this Section 00700 General Conditions by this reference.

**4.4 Concerning Control of Work:**

4.4.1. The **Contractor** shall prosecute the Work in the way that will cause the least practicable interference with and avoid prolonged interruption of, or damage to, existing facilities. The **Contractor** shall obtain written approval from the **Owner** ten (10) Calendar Days before connecting to existing facilities or interrupting service. If the **Contractor's** Means and Methods require tapping into an existing system(s), the **Contractor** shall be responsible for the restoration of such system and of any extensions of such systems.

4.4.2. To the extent specified Work on an existing system may cause damage to, or imbalances in extensions of such systems, and restoration of the entirety of such systems is not designated in the Drawings and/or Specifications as required Work, the **Contractor** shall be responsible for seeking an appropriate clarification or interpretation from the **Professional** before proceeding with the Work Involved.

4.4.3. The **Contractor** shall perform Work and operate vehicles and construction equipment in a safe manner and without becoming a hazard to the public, while at the same time ensuring the least practicable interference with pedestrians and traffic. In addition, such operations shall be carried out without interfering with overhead utilities. When transporting materials or equipment, vehicles shall not be loaded beyond the capacity set by their manufacturers or applicable Laws. When crossing sidewalks, curbs or landscaped areas, the **Contractor** shall protect them from damage. Safe and adequate pedestrian and vehicular access shall be maintained to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, hospitals, fire, and police stations and like establishments.

4.4.4. The **Contractor** shall be responsible for performing the pumping, draining, and controlling of surface water and groundwater in the way that will not endanger the Work or any adjacent facility or property, or interrupt, restrict or interfere with the use of any adjacent facility or property.

4.4.5. Paragraph 3.10, Section 00100 Instructions to Bidders, invoking the "Soil Erosion and Sedimentation Control," 1994 PA 451, Part 91, as amended, MCL 324.9101 et seq., is made part of Section 00700 General Conditions by this reference.

4.4.6. To the extent the **Contractor** knows, or has reason to know, the **Contractor** shall be responsible for performing the Work taking fully into account any dewatering, blasting, etc. operations from other work bearing a potential impact on the Work.

4.4.7. Any damaged Work corrected by the **Contractor** shall be corrected and made equal in all respects (quality, finish, appearance, function, etc.) to similar non-damaged Work otherwise required by the Contract Documents.

4.4.8. The **Contractor** shall verify that Work already *in-place* is in proper condition to receive *dependent* Work, and that dependent Work connecting to the *in-place* Work is properly coordinated. Whether or not expressly specified in the Contract Documents, the **Contractor** shall be responsible for all cutting, fitting, drilling, fixing-up and patching of concrete, masonry, gypsum board, piping and other materials that may be necessary to make *in-place* Work and *dependent* Work fit together properly.

4.4.9. The **Contractor** shall not obstruct access to municipal structures, hydrants, valves, manholes, fire alarms, etc., nor operate valves or otherwise interfere with the operation of any Public utilities without first securing the necessary approvals and permits. Except as may be otherwise provided in the technical Specifications, the **Owner** will charge the **Contractor** for all utilities used based on the charges the **Owner** actually incurs.

4.4.10. In the event of any unauthorized interruption of service to any operating facility, the **Contractor** shall take immediate action to restore that service as soon as practicable. The **Contractor** shall be directly responsible for the charges of any manufacturer's representative called to the site to repair or adjust any systems damaged by the **Contractor**.

4.4.11. Whenever the **Contractor** has caused an operating security system to go out of service or left unsecured openings in existing facilities or security fences, the **Contractor** shall furnish a security guard acceptable to the **Owner** to maintain security of the facility outside of normal working hours. The **Contractor** will be held responsible for any losses on account of the **Contractor's** interruption of security systems or barriers at existing facilities.

4.4.12. The **Contractor** shall take steps, procedures or means as may be required to prevent dust nuisance resulting from the **Contractor's** operations. The dust control measures shall be maintained at all times to the satisfaction of the **Owner** and any Political Subdivision with jurisdiction.

4.4.13. The **Contractor** shall, before final inspection, mark in a permanent and readily identifiable manner, all reference points provided by the **Owner**.

**4.5 Patent Fees and Royalties:**

4.5.1. The **Contractor** shall be responsible for paying all royalties and license fees and assuming all costs resulting from the use in the furnishing and performance of the Work and/or the incorporation into the Work of any invention, design, process, product, or device covered by patent rights or copyrights, whether specified in the Contract Documents or chosen by the **Contractor**.

The **Contractor** shall sign suitable agreement(s) with the patentee or copyright owner and, if requested, provide copies to the **Owner.**

4.5.2. The **Contractor** shall defend, indemnify, and hold harmless the **Owner** and **Professional** from and against all claims, as construed in paragraph 1.4, arising from any patent or copyright infringement by the Contractor including, but not limited to, patent or copyright infringements resulting from "or equal" substitution of any invention, design, process, product, or device that is specified in the Contract Documents.

4.5.3. If the **Contractor** knows, or should know, that the specified invention, design, process, product, or device infringes on a patent or copyright, the **Contractor's** obligation to defend, indemnify and hold harmless **Owner** and **Professional** from and against all claims arising from any patent or copyright infringement shall apply, unless the **Contractor** promptly furnishes that information to the **Professional** in writing.

**4.6 Use of Premises:**

4.6.1. The **Contractor** shall confine its operations (including, but not limited to construction equipment and laydown and storage) to the site and lands, areas, properties, facilities, rights-of-way, and easements ("the premises") identified and permitted by the Contract Documents and shall not unreasonably encumber the premises. The **Contractor** shall be responsible for any damage to the premises (including, but not limited to, damage to any real and personal property) and for any damage to any adjacent lands, areas, properties, facilities, rights-of-way, and easements (including, but not limited to, damage to any real and personal property) resulting from the **Contractor's** operations. The **Contractor** shall defend, indemnify, and hold harmless the **Owner** and **Professional** against all claims, as construed in paragraph 1.4, arising from any damage to such premises or adjacent lands, areas, properties, facilities, rights-of-way, and easements (inclusive of real and personal property), including loss of use, to the extent resulting from the **Contractor's** operations.

4.6.2. The **Contractor** shall keep the premises free from accumulations of waste materials, rubbish, and other debris, and shall not remove, injure, cut, alter, or destroy trees, shrubs, plants, or grass, unless otherwise provided elsewhere in the Contract Documents. At the completion of the Work, the **Contractor** shall remove all obstructions, waste and surplus materials, rubbish, debris, tools, and construction equipment and shall leave the site clean and ready for occupancy by the **Owner**.

4.6.3. The **Contractor** shall restore to pre-existing conditions all walks, roadways, paved or landscaped areas and other real and personal property not designated for alteration by the Contract Documents. To the extent the **Contractor** refuses, fails or neglects to replace all such altered premises and/or restore to its pre-existing condition any walk, roadway, paved or landscaped area and other property not designated for alteration by the Contract Documents, the **Contractor** shall bear its proportionate share of the Delay and costs resulting from the **Contractor's** refusal, failure, or neglect to do so.

4.6.4. The **Contractor** shall not load or permit any part of any structure to be loaded in any way that will endanger the structure. The **Contractor** shall not subject any part of the Work or adjacent property to stresses or pressures that will damage or endanger the Work or adjacent property, or both.

**4.7 Record Documents:**

4.7.1. The **Contractor** shall maintain at the site one copy of all Record Documents in good order and annotated in a neat and legible manner using a contrasting, reproducible color to show (a) all revisions made, (b) dimensions noted during the furnishing and performance of the Work, and (c) all deviations between the as-built installation and the Contract Documents, all approved Submittals and all clarifications and interpretations.

4.7.2. Record Documents, along with a properly annotated copy of all approved Submittals, shall be available to the **Professional** and **Owner** at all times during the progress of the Work. The finalized Record Documents and approved Submittals shall be required for processing final payment to the **Contractor.**

4.7.3. The **Contractor** shall maintain and make available to the **Owner** and **Professional** daily field reports and digital photos recording the on-site labor force and equipment (**Contractor** and Subcontractors); materials/equipment received (at the site or at another location); visits by Suppliers; significant in-progress and completed trade Work within major areas; and other pertinent information.

4.7.4. Such daily field reports shall be furnished by the **Contractor** promptly to the **Professional** and **Owner** upon their request and shall be accepted by the **Owner** for information only. Neither the **Owner** nor **Professional's** review of any daily field report shall be construed as agreement with the information contained in any such daily field report.

**4.8 Emergencies:**

4.8.1. In Emergencies affecting the safety or protection of Persons, the Work or property at or adjacent to the site, the **Contractor**, without any special instruction or authorization from the **Professional** and/or the **Owner**, is obligated to act to prevent threatened damage, death, injury, or loss.

4.8.2. The **Contractor** shall give the **Owner** prompt written notice of any changes in the Work resulting from the action taken. If the **Owner** concurs, the **Owner** will amend the Contract Documents to provide for those changes and, unless the Emergency results in whole or in part from any act or omission within the control of the **Contractor**, to provide for any corresponding adjustment in Contract Price and/or Contract Time.

**4.9 Indemnification:**

4.9.1. The **Contractor** shall defend, indemnify and hold harmless the **Owner** and **Professional** from and against all claims, as construed in paragraph 1.4, for bodily injury, sickness, disease or death, or injury to the destruction of property, including loss of use, arising out of, relating to, or being in any way connected with the Work, that are in any way (a) caused by any negligent act or omission of the **Contractor**, any Subcontractor or Supplier or anyone for whose acts any of them may be liable, or (b) related to the **Contractor's** failure to maintain the required insurance and coverages. As a point of emphasis, and as set forth in paragraph 1.4, such claims shall include, but are not limited to charges of architects, engineers, attorneys and others and all court, hearing, and other dispute resolution costs.

4.9.2. As a point of emphasis, as set forth in paragraph 1.4, this indemnification obligation shall include claims caused in part by

the negligence or other liability-creating conduct or omissions of the **Owner** (including State departments, agencies, boards, commissions, officers, and employees) or **Professional**; however, the **Contractor** shall not be required to indemnify the **Owner** or **Professional** against liability for loss or damage resulting from the sole negligence of the **Owner** and/or **Professional**.

4.9.3. With respect to claims against the **Owner** or **Professional** by any employee of the **Contractor**, the indemnification obligation under this paragraph 4.9 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the **Contractor**, any Subcontractor or Supplier under workers' compensation, disability benefit or other benefit acts.

## ARTICLE 5 SUBCONTRACTORS AND SUPPLIERS

### 5.1 Employment of Subcontractors:

5.1.1. Upon due investigation, the **Owner** may revoke, because of subsequent violation of a material requirement of the Contract Documents, the **Owner's** consent to any Subcontractor previously given pursuant to the provisions of Article 8 of Section 00100 Instructions to Bidders and Section 00430 List of Subcontractors. Any such revocation of the **Owner's** consent shall not justify any increase in Contract Price or Contract Time.

5.1.2. After Contract Award, if the **Contractor** intends to add or substitute a Subcontractor for Work in a Division, Specification and/or trade for which Subcontractor nomination was required in Section 00430 List of Subcontractors, the **Contractor** shall nominate that Subcontractor for review by the **Owner** and/or **Professional**. The **Contractor** shall not award such Work to any Subcontractor to whom the **Owner** objects for good cause. No adjustment in Contract Price or Contract Time shall be allowed for any such newly nominated Subcontractor.

5.1.3. Whenever the **Owner** objects, for its convenience, to any Subcontractor nominated, but not objected to, before Contract Award or to any Subcontractor nominated after Contract Award, the **Contractor** shall nominate a substitute Subcontractor or shall proceed to self-perform the Work involved if the **Contractor** is so qualified. If any such **Owner** objection requires a Subcontractor substitution or the **Contractor** to self-perform the Work Involved, in either case at an increase of the **Contractor's** cost for the part of the Work Involved, the **Owner** will amend the Contract Documents to provide for a corresponding adjustment in Contract Price and/or Contract Time made necessary by the Subcontractor substitution or self-performance and by any resulting Delay which is not reasonably anticipatable under the circumstances and which is attributable to the **Owner** and/or **Professional.**

5.1.4. Failure of the **Owner** to object to any nominated Subcontractor shall not constitute a waiver of any right of the **Owner** or **Professional** to reject Defective Work; nor shall the authority given to the **Owner** under this paragraph create or impose any duty on the **Owner** or **Professional** to exercise such authority for the benefit of the **Contractor** or any other third party.

5.1.5. Installation of any self-performed or Subcontractor Work shall constitute acceptance by the **Contractor** of all previously placed dependent Work. Consistent with this responsibility, the **Contractor**, directly or through the **Contractor's** choice of Subcontractors, shall supply, install and/or cause items to be built into previously placed Work, shall verify dimensions of previously placed Work, and shall notify the **Professional** of previously placed Work that is unsatisfactory for, or prevents satisfactory installation of, other dependent Work.

5.1.6 Work performed by any Subcontractor or Supplier shall be through an appropriate written Sub agreement that expressly binds the Subcontractor or Supplier to the requirements of the Contract Documents and contains the waiver of rights of subrogation provisions of Article 7.

### 5.2 "Or Equal" and Substitute Materials and Equipment:

5.2.1. Materials or equipment described in the Contract Documents by using a brand name, make, manufacturer, supplier, or specification shall be intended to denote the essential characteristics desired and establish a standard.

5.2.2. For materials and equipment which are actually *listed* in Schedule 1.6 of Section 00440 Schedule of Materials and Equipment, no "or equal" or substitute material or equipment will be acceptable or permitted unless the **Contractor** complies with the terms and conditions of paragraphs 5.2.2.1 through 5.2.2.5.

5.2.2.1. Unless words are used in a technical Specification indicating that no "or equal" or substitution is permitted, a proposal for an "or equal" or substitution may be accepted by the **Professional** if, in the **Professional's** judgment, the proposal (a) meets the criteria set forth in paragraphs 5.2.2.2 through 5.2.2.5, (b) demonstrates a net positive deduction, i.e., the deductive value of the proposal exceeds all direct, indirect and consequential costs and damages attributable to the "or equal" or substitution, and (c) offers a Contract Price decrease of one hundred percent (100%) of the net deduction, or another percentage reflecting a sharing of the savings which is agreed between the **Owner** and **Contractor.**

5.2.2.2. The **Contractor's** written application for the "or equal" or substitute material or equipment shall provide sufficient information to allow the **Professional** to determine whether the material or equipment proposed (a) will equally perform the functions and achieve the results called for by the Contract Documents, (b) is at least of equal materials of construction, quality and necessary essential design features, (c) is suited to the same use as that named or specified, (d) conforms substantially to the desired detailed requirements, e.g., durability, strength, appearance, aesthetics (if aesthetics are significant), safety, useful life, reliability, economy of operation and ease of maintenance, (e) evidences a proven record of performance and the availability of responsive service, and (f) will not extend any Contract Times.

5.2.2.3. Each such application shall certify whether or not acceptance of the proposed "or equal" or substitute material or equipment will require a change in any of the Work or any of the Means and Methods indicated in or required by the Contract Documents, or in work performed by the **Owner** or others, and whether or not incorporation or use of the proposed material or equipment is subject to payment of any license fee or royalty. All variations of the proposed material or equipment from the material or equipment named or specified shall be identified (operation, materials or construction finish, thickness or gauge of material, dimensions, loads, tolerances, deleted and added features, etc.), and information regarding available maintenance, repair and replacement service shall be indicated.

5.2.2.4. The application shall contain an itemized estimate of all direct, indirect, and consequential costs and damages that will

result from evaluation and acceptance of the proposed "or equal" or substitute material and equipment, including but not limited to costs and delays of redesign, or claims of other contractors affected by the proposed item, and changes in operating, maintenance, repair, replacement, or spare part costs. The **Professional** may require the **Contractor** to furnish a manufacturer's performance Bond, an analysis of the effects of the evaluation/acceptance of the "or equal" or substitution on the Progress Schedule, a list of locations of similar installations that have been in service for at least three (3) years before the date of the application, and any other relevant data.

5.2.2.5. The **Contractor** shall be responsible for verifying that "or equal" or substitute materials and equipment conform to the Contract Documents, and that all dimensions, arrangement, design and construction details and other features are suited to the specified purpose. If any "or equal" or substitute material or equipment differs materially from the material or equipment named or specified, and that difference was not expressly identified in the **Contractor's** application, or results in changes in the Work, the **Professional** has authority to require removal and replacement of that "or equal" or substitute material or equipment. The **Contractor** shall bear its proportionate share of the Delay and costs resulting from (a) any such removal and replacement of "or equal" or substitute materials or equipment, (b) making "or equal" or substitute materials or equipment conform to the requirements of the Contract Documents, and (c) any changes in the Work and/or in other work required to accommodate the "or equal" or substitute material or equipment, or both.

5.2.2.6. The **Contractor** shall reimburse the **Owner** for any costs incurred by the **Owner** in the evaluation of any "or equal" or substitution proposal. Such costs shall include, but are not limited to, related charges of the **Professional** made necessary by the evaluation and acceptance or rejection, as the case may be, of the proposed "or equal" or substitute material or equipment.

5.2.3. For materials and equipment *not listed* in Schedule 1.6 of Section 00440 Schedule of Materials and Equipment, no substitute material or equipment will be acceptable or permitted unless the **Contractor** meets with the requirements of paragraphs 5.2.2.1 through 5.2.2.5. Further, the reimbursement provisions of paragraph 5.2.2.6 shall apply equally to such substitutions.

5.2.4. Unless approved by the **Professional**, for materials and equipment *not listed* in Schedule 1.6 of Section 00440 Schedule of Materials and Equipment, no "or equal" material or equipment will be acceptable or permitted unless the **Contractor** complies with the requirements of paragraphs 5.2.2.2 – 5.2.2.5.

5.2.5. No "or equal" or substitute item shall be ordered, installed, or utilized without the **Owner's** prior acceptance. The **Owner's** acceptance shall be evidenced by a signed Change Order or Change Authorization, or if so, specifically designated by the **Professional**, by an approved Shop Drawing or sample.

**5.3 The Contractor's Continuing Responsibilities:**

5.3.1. The **Contractor** shall be fully responsible to the **Owner** and **Professional** for all acts and omissions of Subcontractors and Suppliers, at any tier, to the same extent as the **Contractor** is responsible for the **Contractor's** own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between the **Owner** or **Professional** and any Subcontractor or Supplier. No provision in Article 12 or in the other Contract Documents shall create or impose any express or implied duty or obligation on the **Owner** or **Professional** to any Subcontractor or Supplier or the **Contractor's** sureties to pay or to see to the payment of any monies owed to any of them.

## ARTICLE 6 SUBMITTALS

**6.1 Shop Drawing, Sample and Other Technical Submittals:**

6.1.1. After complying with those requirements in paragraphs 6.1.2 through 6.1.5 and the technical Specifications, the **Contractor** shall submit to the **Professional** (a) an electronic file(s) of the drawing(s) compatible with the latest version of AutoCAD of all Shop Drawings required by the Contract Documents and bond copies if requested by the **Owner** or **Professional**; (b) all required samples (whether color or otherwise); and (c) all other technical Submittals (test results, test procedures, safety procedures, O&M manuals, etc.) that are required by the Contract Documents.

6.1.2. Submissions shall be delivered to the **Professional** with due diligence, as delineated in or required by the Progress Schedule, and shall allow reasonable times, per 6.5.1, for the **Professional's** review and turnaround. Each Submittal shall be uniquely identified as the **Professional** and **Contractor** may agree.

6.1.3. Each Submittal shall bear a stamp or specific written indication certifying that the **Contractor** has satisfied the requirements of this Article and the technical Specifications and the **Contractor's** responsibilities for prior review of the submission. In addition, each sample shall have been checked and be accompanied by a certificate guaranteeing that the material sampled complies with the Contract Documents. Unless otherwise allowed by the **Professional**, Submittals without the **Contractor's** indication of approval will be returned without review.

6.1.4. Before each submission, the **Contractor** shall (a) determine and verify all field measurements, quantities, dimensions, instructions for installation and handling of equipment and systems, installation requirements (including location, dimensions, access, fit, completeness, etc.), materials, color, catalog numbers and other similar data as to correctness and completeness, and (b) have reviewed and coordinated that technical Submittal with other technical Submittals and the requirements of the Contract Documents. Technical Submittals of a Subcontractor or Supplier shall be coordinated with those of other Subcontractors or Suppliers (location, dimensions, fit, completeness, consistency, integration, etc.), and so represented in the **Contractor's** stamp or specific written approval before submission to the **Professional**.

6.1.5. With each submission, the **Contractor** shall give the **Professional** specific written notice of each variation from the requirements of the Contract Documents, and the **Contractor** shall cause a specific notation of each variation to be made on that Shop Drawing, sample, or other technical Submittal.

6.1.6. Where a Shop Drawing, sample or other technical Submittal is required by the technical Specifications, any related Work performed by the **Contractor** before the **Professional's** approval of the pertinent technical Submittal will be at the sole expense and responsibility of the **Contractor**.

6.1.7. The **Professional** shall be entitled to rely upon the accuracy or completeness of any designs, calculations or certifications made by licensed or certified professionals attached to a specific technical Submittal, whether or not that stamp, or written certification is required by the Contract Documents

**6.2 Review and Return of Technical Submittals:**

6.2.1. The **Professional's** review of a technical Submittal will be to evaluate whether the items covered by the Submittal, after installation or incorporation into the Work, will conform to the general design intent of the Contract Documents and for compatibility with the design of the completed Work as a functioning whole as indicated in the Contract Documents.

6.2.2. The review of Submittals by the **Professional** shall not be conducted for the purpose of determining the accuracy and completeness of such details as dimensions or quantities shown or indicated on the Submittals, or for substantiating instructions for installation or performance of equipment and systems developed by or for the **Contractor**, the correctness of which shall remain the sole responsibility of the **Contractor.** Further, any such **Professional's** review and approval will not extend to any Means and Methods (except where a specific Mean and Method is indicated in or required by the Contract Documents) or to safety precautions or programs related to safety.

6.2.3. Approval by the **Professional** of a separate item or partial Submittal shall not translate to approval of the assembly in which the item functions or to the approval of related Submittals not yet reviewed and approved by the **Professional**.

**6.3 Progress Schedule Submittals:**

6.3.1. After complying with the appropriate Progress Schedule requirements in the technical Specifications, the **Contractor** shall submit to the **Professional** electronic copies of the Progress Schedule Submittal then due, which shall include both PDF format and active software files with the **Contractor's** specific schedule data. Each Progress Schedule Submittal shall bear the **Contractor's** stamp or written indication of approval as representation to the **Owner** that the **Contractor** has determined or verified all data on that Progress Schedule, and that the **Contractor** and Subcontractors and Suppliers have reviewed and coordinated the sequences in that Progress Schedule with the requirements of the Work. Progress Schedule Submittals are not Contract Documents.

6.3.2. Progress Schedule Submittals are intended to show: (a) the priority and sequencing by which the **Contractor** intends to execute the Work (or Work remaining) to comply with the Contract Times, those sequences of Work indicated in or required by the Contract Documents and any other requirements of the Contract Documents; (b) how the **Contractor** anticipates foreseeable events, site conditions and all other general, local and prevailing conditions that may in any manner affect cost, progress, schedule, performance and furnishing of the Work; (c) how the Means and Methods chosen by the **Contractor** translate into Activities and sequencing; (d) the actual timing and sequencing of completed Work; and (e) if required by the Contract Documents, the allocation of the Contract Price to the Activities.

**6.4 Review and Return of Progress Schedule Submittals:**

6.4.1. The **Owner's** and **Professional's** review of Progress Schedule Revision 0 Submittals may result in comments relating to conformance with (a) the Contract Times, (b) those sequences of Work indicated in or required by the Contract Documents, and (c) any other Contract Document requirements that may have a significant bearing on the use of Revision 0 Progress Schedule Submittals to resolve issues affecting Contract Price and/or Contract Time. Progress Schedule review comments may also result in the selection of Targets and recording of Target Times.

6.4.2. The review of Progress Schedule Revision Submittals may, in addition to the types of comments outlined in paragraph 6.4.1, result in comments as to whether the **Contractor's** scheduling of Work remaining continues to conform with the Contract Times and those sequences of Work indicated in or required by the Contract Documents. Progress Schedule Revision Submittal review comments may also respond to suggested **Contractor** schedule recovery plans, when and as appropriate, and to **Contractor** requests for extensions in Contract Time.

6.4.3. Progress Schedule reviews shall not impose on the **Owner** or **Professional** any responsibility for verifying whether Work is omitted; Activity durations are reasonable; the adequacy of the level of labor, materials, and construction equipment; the reasonableness of the **Contractor's** chosen Means and Methods; or whether Work sequences and Activity timing are practicable. Even if any comments or objections are noted from the reviews of Progress Schedule Submittals, no such reviews or objections noted shall be effective or construed to create or impose on the **Owner** or **Professional** any responsibility for the timing, planning, scheduling, or execution of the Work or for the correctness of any such Progress Schedule details. The correctness of the Progress Schedule shall remain the sole responsibility of the **Contractor**.

**6.5 Additional Provisions Concerning Submittals:**

6.5.1. Unless otherwise designated in a more specific technical Specification, a Submittal will be returned to the **Contractor** within fifteen (15) to twenty (20) Calendar Days, as designated by the **Professional** in writing. If a Submittal cannot be returned when it comes due, the **Professional** shall give appropriate notice to the **Contractor** of its return date. The **Contractor** shall revise, and correct Submittals returned for revision and resubmittal, and resubmit them to the **Professional** directing specific attention in writing to revisions other than the corrections called for by the **Professional** on previous submissions of the same Submittals.

6.5.2. No review or approval of Submittals shall relieve the **Contractor** of responsibility for the following: (a) variation from the requirements of the Contract Documents, unless the **Contractor** has called attention to each variation, as provided in paragraph 6.1.5, and the **Professional** has given written approval of that variation by a specific notation within or attached to the returned Submittal, (b) compliance with the "or equal" and substitution requirements of paragraph 5.2, (c) errors or omissions in the Submittal, or (d) compliance with the requirements of this Article.

6.5.3. Unless the **Professional** determines that additional resubmissions are reasonable under the circumstances, all costs incurred by the **Owner** made necessary by the **Professional's** review of a Submittal after the first resubmission of that Submittal shall be reimbursed by the **Contractor** to the **Owner**.

6.5.4. All time consumed by the resubmissions and rereviews of a particular Submittal shall constitute time required to furnish that Submittal or shall represent Delays not justifying any increase in Contract Time or Contract Price, or both.

## ARTICLE 7 LEGAL REQUIREMENTS; INSURANCE

### 7.1 Laws; Permits (Which Include Approvals and Licenses):

7.1.1. The **Contractor** shall comply with and shall require all Subcontractors and Suppliers to comply with, all applicable Laws. The **Contractor** shall insure that everyone employed on the Work discharge their responsibilities consistent with all Laws.

*7.1.2. The **Contractor** shall secure from the State Department of Labor and Economic Growth and from all Political Subdivisions with jurisdiction, all construction permits necessary for the commencement, prosecution, and completion of the Work before starting any Work at the site. All fees for securing the permits shall be paid by the **Contractor**, including all inspection costs which may be legally assessed by the Bureau of Construction Codes according to authority granted under 1972 PA 230, as amended, MCL 125.1501 et seq. The time incurred by the **Contractor** in obtaining construction permits shall constitute time required to complete the Work and shall not justify any increases in Contract Time or Contract Price, except to the extent any related Delay is attributable to the fault of the Drawings or Specifications or to revisions to the Drawings and/or Specifications required by the Political Subdivision with jurisdiction.

7.1.3. Unless expressly required by any Laws or permits, neither the **Owner** nor **Professional** shall be responsible for monitoring the **Contractor's** compliance with any Law, the State Construction Code, or any permits. The **Contractor** is not responsible to make certain that the Contract Documents comply with applicable Laws and the State Construction Code; however, if the **Contractor** believes the Contract Documents deviate from the requirements of any Law, the State Construction Code or any permit, the **Contractor** shall give the **Professional** prompt written notice. If the **Contractor** provides any Work knowing or having reason to know such Work conflicts with any Laws, or the State Construction Code or any permits, the **Contractor** shall be responsible for that performance. The **Contractor** shall be proportionately responsible for the time required and the costs involved in complying with the obligations stated in this paragraph.

*7.1.4. All Work shall be provided in accordance with the State Construction Code and the requirements of paragraph 1.2.4. If the **Contractor** observes that any Contract Document is at variance with any Laws or the State Construction Code in any respect, the **Contractor** shall promptly notify the **Professional** in writing, and any necessary changes shall be accomplished by an appropriate Change Order. The **Contractor** shall pay all charges of Public Utilities for connections to the Work, unless otherwise provided by Cash Allowances specific to those connections.

*7.1.5. In accordance with the Michigan State Construction Code Act, 1972 PA 230, as amended, MCL 125.1501 et seq., the State Department of Labor and Economic Growth, Construction Code Commission has adopted and filed with the Secretary of State the following Construction Code Reference Standards: (a) Michigan Building Code; (b) Michigan Plumbing Code; (c) National Electric Code; (d) Michigan Mechanical Code; (e) State Elevator Code; (f) State Boiler Code; and (g) State Barrier Free Design Rules.

### 7.2 Sales and Use Tax and Other Similar Taxes:

7.2.1. The **Contractor** shall be responsible for and pay all Michigan sales and use taxes and any other similar taxes covering the Work that are currently imposed by legislative enactment and as administered by the Michigan Department of Treasury, Revenue Division. The **Owner** shall make a corresponding adjustment in Contract Price for any increase or decrease in sales, use and other similar taxes (excluding payroll taxes) covering the Work that are enacted after the date of Bid opening.

### 7.3 Safety and Protection:

7.3.1. The **Contractor** shall comply with and shall require all Subcontractors and Suppliers to comply with, all Laws governing the safety and protection of persons or property, including, but not limited to the Michigan Occupational Safety and Health Act (1974 PA 154, as amended, MCL 408.1001 et seq.) and all rules promulgated under the Act. The **Contractor** shall be responsible for all fines and penalties imposed for any related violation(s) of federal and State health and safety requirements. The **Contractor's** safety representative at the site shall be the superintendent required by the provisions of paragraph 4.2.2, unless otherwise designated in writing by the **Contractor**.

7.3.2. The **Contractor** shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs. The **Contractor** shall take all necessary precautions for the safety of, and shall erect and maintain all necessary safeguards and provide the necessary protection to prevent damage, injury or loss to: (a) all employees on the Work and other persons who may be affected by the Work, (b) all the Work and materials and equipment to be incorporated into the Work, whether stored on or off the site, and (c) other property at or adjacent to the site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Utilities not designated for removal, relocation or replacement. In the event of severe weather, the **Contractor** shall immediately inspect the Work and the site and take all reasonably necessary actions and precautions to protect the Work and ensure that public access and safety are maintained.

7.3.2.1. All damage, injury or loss to the Work, materials and equipment and such other property caused, directly or indirectly, in whole or in part, by the **Contractor** shall be remedied by the **Contractor**, except to the extent due to fault of the Drawings or Specifications or to act or omission of the **Owner** or **Professional**, and not due to, directly or indirectly, in whole or in part, to the fault or negligence of the **Contractor** or any Subcontractor or Supplier.

7.3.2.2. The **Contractor** shall notify owners of adjacent property and Underground Utilities when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

7.3.2.3. Except as the division of responsibilities for safety may be otherwise delineated in writing between the **Owner** and **Contractor** in a Substantial Completion certificate, the **Contractor** duties and responsibilities for safety and protection shall continue until such time as the **Professional** is satisfied that the Work, or Work inspected, is completed and ready for final payment.

7.3.3. Use of Explosives – The **Contractor** shall comply with all federal, state, and local Laws governing the use of explosives, obtain and pay for any required permits before their use and furnish a copy of the permits to the **Professional** before using explosives.

The **Contractor** shall, under the supervision of competent and suitably trained and qualified personnel, exercise the utmost care not to endanger life or damage property in the transportation, storage, handling, use and disposal of explosives, and in the use of Means and Methods. The **Contractor** shall be responsible for all injury, damage and adverse impacts outside the permit area resulting from the use of explosives (including an appropriate portion of the Delay and costs resulting from such injury, damage, and impacts).

**7.4 Bonds and Insurance – General Requirements:**

7.4.1. Both the Section 00610 Performance Bond and Section 00620 Payment Bond shall remain in full force and effect from the date of Contract Award until final completion of the Work or the end of the Correction Period, whichever comes later. The **Contractor** shall furnish any other bonds (e.g., manufacturer performance Bond or maintenance Bond) required by Section 00800 Supplementary Conditions or the technical Specifications.

7.4.2. The **Contractor** shall purchase and maintain insurance providing the coverages and limits designated in this Article. Insurance shall be provided by insurers authorized to do business as insurer in the State, as evidenced by a Certificate of Authority issued by the Department of Consumer and Industry Services – Insurance Bureau. Also, and unless otherwise authorized in writing by the **Owner**, insurers shall have an "A-" A.M. Best Company Rating and a Class VII or better financial size category as shown in the most current A.M. Best Company ratings. The **Contractor** shall not start to perform and furnish the Work, or continue with any part of the Work, unless the **Contractor** has in full force and effect all the required insurance.

7.4.3. Insurance policies shall contain a provision or endorsement stating that coverage will not be canceled or materially changed, or renewal refused unless at least thirty (30) Calendar Days prior written notice has been personally delivered or sent by registered mailed to the **Owner** and **Contractor**. Any coverage nearing expiration during the period in which it is to remain in full force and effect shall be renewed before its expiration, and an acceptable certificate of insurance shall be filed with the **Owner** at least thirty (30) Calendar Days before it expires.

7.4.4. If any of the **Contractor's** sureties or insurers is declared bankrupt or placed into receivership, ceases to meet the requirements of the Contract Documents or its authority to do business in the State is revoked or expires, the **Contractor** shall immediately substitute other Bonds/sureties or insurers/policies, which shall meet the requirements of the Contract Documents.

**7.5 The Contractor's Liability Insurance:**

7.5.1. The **Contractor** shall maintain Workers' Compensation and Employer's Liability, Commercial General Liability, Commercial Automobile Liability, Excess Liability, and such other insurance as may be designated in Section 00800 Supplementary Conditions or as is appropriate for the Work. The **Contractor's** liability insurance shall provide protection from claims which may arise out of or result from the **Contractor's** performance and furnishing of the Work and the **Contractor's** other obligations under the Contract Documents, whether performed or furnished by the **Contractor**, any Subcontractor, any Supplier, or anyone for whose acts any of them may be liable.

7.5.2. Liability Insurance shall be endorsed to list as additional insureds the **State of Michigan** (Owner), its departments, divisions, agencies, offices, commissions, officers, employees and agents, the **Owner's** consultants, and agents, the **Professional**, and the **Professional's** consultants and agents, including their respective subsidiaries and affiliates and their respective directors, officers, shareholders, agents, or employees. The **Contractor** shall use the current Insurance Services Office (ISO) Form CG 20 09 for general liability insurance or equivalent, ISO Form CA 20 01 for automobile liability insurance or equivalent, and manuscript form for excess liability insurance. The insurance afforded to the additional insureds shall be primary, and neither the coverages nor limits under the **Contractor's** policies shall be reduced or prorated by the existence of any other insurance applicable to any loss that the additional insureds may have sustained. Workers' Compensation, Employer's Liability Insurance and all other liability insurance policies shall be endorsed to include a waiver of rights to recover from the **Owner, Professional** and the other additional insureds.

7.5.3. The **Contractor's** liability insurance shall remain in effect through the Correction Period and through any special correction periods that are implemented pursuant to the requirements of paragraph 9.5.3. Liability insurance issued on a claims-made basis and completed operations insurance shall be maintained for two (2) years after final payment, and evidence of coverage shall be furnished to the **Owner** yearly.

7.5.4. For any employee, resident of and hired in Michigan, the **Contractor** shall have insurance for benefits payable under Michigan's Workers' Compensation Law. For any other employee protected by Worker's Compensation Laws of any other state, the **Contractor** shall have insurance or participate in a mandatory state fund, where applicable, to cover the benefits payable to any such employee.

7.5.5. Commercial General Liability Insurance shall be equivalent to that provided by the current edition of standard ISO Form CG 00 01, and shall include contractual liability and underground, explosion and collapse hazard exposure operations and pile driving operations (if risk is present).

7.5.6. Commercial Automobile Liability Insurance coverage shall be equivalent to that provided by the current edition of the ISO Form CA 00 01 and include Michigan statutory requirements.

7.5.7. Excess Liability Insurance shall provide the following protections: employer's liability, general liability, and automobile liability. Excess Liability Insurance shall be at least as broad as the underlying policies of liability insurance.

7.5.8. Coverage Limits - Workers' Compensation and Employer's Liability Insurance shall conform to statutory limits under Michigan Law. Commercial General Liability limits shall be $2,000,000.00 each occurrence, $2,000,000.00 general aggregate, $2,000,000.00 products and completed operations aggregate, and $2,000,000.00 personal and advertising injury. Commercial Automobile Liability limits shall be $2,000,000.00 combined single limit. Excess Liability limits shall be $2,000,000.00 each occurrence and aggregate, if the Contract Price is less than $10,000,000.00, and $5,000,000.00 each occurrence and aggregate, otherwise. Deductible amounts shall not exceed $25,000.00.

7.5.9. The **Contractor** shall promptly notify the **Owner** in writing of (a) any reduction in coverage limits over $100,000.00 resulting from Work under the Contract Documents or otherwise, and (b) any claim notice involving the Work. Notification of a claim shall provide full details and an estimate of the amount of loss or

liability. If it turns out that the aggregate limits have been impaired to the extent that they are no longer adequate for the Work, the **Contractor** shall promptly reinstate the coverage limits and submit to the **Owner** certificates of insurance confirming that coverage has been reinstated to the specified limits.

7.5.10. These requirements shall not be construed to limit the liability of the **Contractor** or its insurers. The **Owner** does not represent that the specified coverages or limits of insurance are sufficient to protect the **Contractor's** interests or liabilities.

**7.6 Pollution Liability Insurance**

(…*** Professional to include Pollution Liability Insurance if needed ***…)

7.6.1. Pollution Liability Insurance in the amounts of not less than $2,000,000 per occurrence is required.**7.7 Property Insurance (Builders Risk Insurance)**

*7.7.1. The **Contractor** shall purchase and maintain property insurance for one hundred percent (100%) of the actual cash replacement value of the insurable Work (minimum amount to be the contract award amount) while in the course of construction, including foundations, additions, attachments, and all fixtures, machinery and equipment belonging to and constituting a permanent part of the building structure. The property insurance also shall cover temporary structures, materials and supplies of all kinds, to be used in completing the Work, only while on the building site premises or within five hundred (500) feet of the site. The property insurance shall insure the interests of the **Owner**, **Contractor** and all Subcontractors and Suppliers at any tier as their interests may appear. The property insurance shall insure against "all risk" of physical loss or damage to the extent usually provided in policy forms of insurers authorized to transact this insurance in Michigan. Any deductible shall be both the option and responsibility of the **Contractor**.

*7.7.2. A certificate or other proof of coverage shall be provided prior to final contract execution or issuance of a purchase order by the State. A copy of the master insurance policy will be made available to the **Owner** upon request.

7.7.3. The **Contractor** and **Owner** will cooperate in determining the actual cash replacement value of any insured loss. Any deductible amount shall be assumed or shared by the **Contractor** and Subcontractors, at any tier, in accordance with any agreement the parties in interest may reach.

7.7.4. The **Owner** may purchase and maintain for its benefit boiler and machinery insurance for boiler and machinery required to be registered and inspected by Law.

**7.8 Waiver of Rights:**

7.8.1. To the extent any losses and damages caused by any of the perils covered by property insurance covering the Work (whether under paragraph 7.7 or otherwise) are covered and payments are made, the **Owner** and **Contractor** waive all rights against each other for any such losses and damages and also waive all such rights against the **Professional** and all other Persons named as insureds or additional insureds in such policies. Each Sub agreement shall contain similar waiver provisions by the Subcontractor or Supplier in favor of the **Owner**, **Professional**, and all other Persons named as insureds or additional insureds. None of these waivers shall extend to the rights that any of the insureds may have to the proceeds of insurance held by the **Owner** as trustee or otherwise payable under a policy so issued.

7.8.2. The **Owner** and **Contractor** intend that the required policies of property insurance shall protect all the parties insured and provide primary coverage for all losses and damages caused by the perils covered. Accordingly, all such policies shall be endorsed to provide that in the event of payment of any loss or damage the insurer will have no rights of subrogation or other recovery against any of the parties named as insureds or additional insureds, and if the insurers require separate waiver forms to be signed by the **Professional** or the **Owner's** and **Professional's** consultants, the **Owner** will obtain such waiver forms, and if required of any Subcontractor or Supplier, the **Contractor** will obtain such waiver forms as well.

**7.9 Receipt and Application of Proceeds:**

7.9.1. Any insured loss under the policies of property insurance will be adjusted with the **Owner** and will be made payable to the **Owner** as trustee for the insureds, as their interests may appear, subject to the conditions of paragraph 7.9.2. The **Owner** shall deposit, in a separate account, and shall distribute monies received based on any agreement the parties in interest may reach. If no other distribution agreement is reached, the damaged Work shall be replaced or repaired, the monies received shall be used for that purpose and the Work Involved and resulting costs shall be covered by Change Order.

7.9.2. The **Owner**, as trustee, shall have power to adjust and settle any loss with the insurers unless a party in interest objects in writing within fifteen (15) Calendar Days after the occurrence of loss to the **Owner's** exercise of this power. If an objection is made, the **Owner** as trustee shall settle with the insurers pursuant to any agreement the parties in interest may reach.

***7.10 Unfair Labor Practice:**

*7.10.1. The **Owner**, pursuant to 1980 PA 278, as amended by MCL 423.321(b), may void and rescind the Contract if, at any time, the **Contractor** or any Subcontractor or Supplier appears on the register maintained by the Michigan Department of Consumer and Industry Services of employers who have been found in contempt of court by a Federal Court of Appeals on not less than three occasions involving different violations during the preceding seven (7) years for failure to correct unfair labor practices as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U.S.C. 158.

***7.11 Michigan Right-To-Know Law:**

*7.11.1. The **Contractor** shall comply with Section 14a-14n of the Michigan Occupational Safety and Health Act (MIOSHA), 1974 PA 154, as amended, MCL 408.1014a – MCL 408.1014n, commonly referred to as the "Michigan Right-to-Know Law" and the rules promulgated under the Act. The Act places certain requirements on employers to develop a communication program designed to safeguard the handling of hazardous chemicals through labeling of chemical containers and development and availability of Safety Data Sheets (SDS), and to provide training for employees who work with these chemicals and develop a written hazard communications program.

*7.11.2. Provisions of the Michigan Right-to-Know Law may be found in those sections of the Michigan Occupational Safety and

Health Act (MIOSHA), which contain Right-to-Know provisions, and the Federal Hazard Community Standard, which is part of the MIOSHA Right-to-Know Law through adoption. The Act, rules and standards should be reviewed for additional requirements.

*7.11.3. The Michigan Right-to-Know Law also provides for specific employee rights, including the right to be notified of the location of SDS and to be notified at the site of new or revised SDS within five (5) Business Days after receipt and to request SDS copies from their employers. The **Contractor**, employer or Subcontractor shall post and update these notices at the site.

***7.12 Nondiscrimination:**

*7.12.1. The **Contractor** and each Subcontractor and Supplier covenants to comply with the following requirements:

*7.12.1.1. Not to discriminate against any employee or employment applicant because of race, religion, color, national origin, age, sex *(as defined in Executive Directive 2019-09)*, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

*7.12.1.2. To take action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position. Such action shall include, but is not limited to employment upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

*7.12.1.3. To state, in all solicitations or advertisements for employees, that all qualified applicants will receive consideration for employment without regard to race, religion, color, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

*7.12.1.4. To send, or have its collective bargaining representative send, each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising that labor union or worker's representative of commitments under this provision.

*7.12.1.5. To comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended, MCL 37.2201 et seq.; the Michigan Persons With Disabilities Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et seq.; *Executive Directive 2019-09*; and all published rules, regulations, directives, and orders of the Michigan Civil Rights Commission which may be in effect on or before the date of Bid opening.

*7.12.1.6. A breach of the covenants set forth in paragraphs 7.12.1.1 through 7.12.1.5 shall be regarded as a material breach of the Contract.

*7.12.2. The **Contractor** shall furnish and file compliance reports within the times, and using the forms, prescribed by the Michigan Civil Rights Commission. Compliance report forms may also elicit information as to the practices, policies, programs, and employment statistics of the **Contractor** and Subcontractors. The **Contractor** shall permit access to Records by the Michigan Civil Rights Commission and its agent for the purposes of ascertaining compliance with the Contract Documents and with rules, regulations, and orders of the Michigan Civil Rights Commission.

*7.12.3. If, after a hearing held pursuant to its rules, the Michigan Civil Rights Commission finds that the **Contractor** has not complied with the nondiscrimination requirements of the Contract Documents, the Michigan Civil Rights Commission may, as part of its order, certify said findings to the **Board**. Upon receipt of certification, the **Board** may order the cancellation of the Contract and/or declare the **Contractor** ineligible for future contracts with the State, until the **Contractor** complies with said order of the Michigan Civil Rights Commission.

***7.13 Michigan Residency for Employees:**

*7.13.1. Fifty percent (50%) of the persons employed on the Work by the **Contractor** shall have been residents of the State of Michigan for not less than one year before beginning employment on the Work. This residency requirement may be reduced or omitted in writing, at the sole discretion of the **Owner**, to the extent that Michigan residents are not available or to the extent necessary to comply with federal Law concerning federal funds used for the Project. A breach of this requirement shall be considered a material breach of the Contract.

*7.13.2. This residency requirement shall not apply to the **Contractor** or to any Subcontractor if the **Contractor** or any such Subcontractor is signatory to collective bargaining agreements which allow for the portability of employees on an interstate basis (The Management and Budget Act, 1984 PA 431, as amended, MCL 18.1241a).

***7.14 Prevailing Wages:**

*7.14.1. To the extent applicable, Contractor will comply with federal and state (2023 PA 10, MCL 408.1101 to 408.1126), prevailing wage requirements.

*7.14.2. Federal Prevailing Wages -The federal prevailing wage requirements in the attached Federal Provisions Addendum apply when the Davis-Bacon Act (40 USC 3141-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction") applies.

7.14.3. State Prevailing Wages-The following provisions of this Article 7.14.3 apply when 2023 PA 10 applies.

7.14.3.1. Prevailing Wage and Fringe Benefits--The rates of wages and fringe benefits to be paid to each class of Construction Mechanic by Contractor and Subcontractors, shall not be less than the wage rates and fringe benefit rates prevailing in the locality in which the work is performed.

7.14.3.2 Nondiscrimination, Nonretaliation- Contractor or a Subcontractor shall not discharge, discipline, retaliate against, or otherwise discriminate against a Construction Mechanic, or threaten to do any of these things, because the Construction Mechanic reported or was about to report a violation or suspected violation of the act.

7.14.3.3. Construction Mechanics under this Contract are intended beneficiaries of the contractual prevailing wage, fringe benefit, and nondiscrimination nonretaliation requirements of the

Contract. Any such Construction Mechanic aggrieved by failure of a contractor or subcontractor to pay prevailing wages or benefits as specified in the Contract, or by violation of section 7 of 2023 PA 10, in addition to any other remedies provided by law, may bring an action in a court of competent jurisdiction against such contractor or subcontractor for damages or injunctive relief and may be awarded reinstatement or other appropriate relief, and all damages sustained, together with actual costs and attorney fees at trial and on appeal.

7.14.3.4. Contractor and Subcontractors shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in this Contract and shall keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each Construction Mechanic employed by it in connection with the Contract. This record shall be available for reasonable inspection by the State.

## ARTICLE 8 PROSECUTION; SUBSTANTIAL COMPLETION

### 8.1 Starting the Work:

8.1.1. Within fifteen (15) Calendar Days after the **Owner** executes the Section 00500 Agreement, a pre-construction conference will be held. The conference will be intended, without limitation, to (a) review the **Contractor's** Schedule of Shop Drawing submissions; (b) review the qualifications of key **Contractor** personnel; (c) review the **Contractor's** proposed normal working hours and plans for laydown, staging, construction traffic, access to the site, parking and other similar matters; (d) review procedures for Submittals, clarifications and interpretations (including reasonable times for response turnaround), Change Orders, Change Authorizations and Record Documents; and (e) exchange twenty-four (24) hour emergency telephone numbers for key personnel.

8.1.2. The **Contractor** shall start the Work on the Date of Commencement of the Contract Time. No Work shall be started at the site before such is allowed by the Contract Documents.

### 8.2 Revision 0 (Rev. 0) Schedule and Cost Submittals:

8.2.1. The **Contractor** shall deliver the interim Rev. 0 Progress Schedule, Schedule of Shop Drawing submissions and Rev. 0 Progress Schedule as required in the Contract Documents. The **Contractor** shall correct and adjust any Rev. 0 Submittal returned for revision. The finalized Revision 0 *As-Planned* Schedule shall be the Progress Schedule from which Revision Schedules shall be developed and used by the **Contractor** when making proposals or claims for adjustments in Contract Time and/or Contract Price.

### 8.3 Compliance with Contract Time Requirements:

8.3.1. The **Contractor** shall prosecute the Work with the diligence necessary to ensure its completion within the Contract Times. The **Contractor** shall provide sufficient management, supervision, labor, materials and equipment, and the **Contractor** shall undertake appropriate action promptly to recover schedule when necessary to comply with the Contract Times.

8.3.2. Unless disallowed by any Law or modified in another Section of the Specifications, a daily schedule from 06:00 AM to 06:00 PM, during Business Days, shall be normal working hours. Except in an Emergency, or as may be required by the **Contractor's** safety and protection obligations, or as the **Owner** and **Contractor** may otherwise agree, all Work at the site shall take place during normal working hours. The **Contractor** shall provide written notice to the **Owner** at least twenty-four (24) hours and up to seventy-two (72) hours if so, noted for projects specific requirements such as Correctional Facilities, before performing Work outside of normal working hours.

8.3.3. Unless otherwise agreed in writing by the **Owner**, for any Work actually performed outside of normal working hours, the **Contractor** shall reimburse the **Owner** any related increases in costs the **Owner** incurs, provided those costs are costs which the **Contractor** could reasonably have foreseen, and which are not offset through the earlier completion of the Work resulting from working outside of normal working hours. Examples of **Owner** costs include, but are not limited to, overtime charges of the **Professional** and payments for custodial and security personnel.

8.3.4. Early Dates in the Progress Schedule shall be based on proceeding with all or part of the Work exactly on the date when the corresponding Contract Time commences to run. Late Dates shall be based on completing all or part of the Work exactly on the corresponding Contract Time, regardless of whether the **Contractor** anticipates early completion or not. If sequences of Work are indicated in or required by the Contract Documents, the Progress Schedule shall show in sufficient detail the **Contractor's** approach to conforming with those sequences.

8.3.5. The Progress Schedule shall reflect the **Contractor's** approach to Work remaining, be employed when reporting on progress or schedule recovery and facilitate the evaluation of Requests for Payment, as provided in the Contract Documents.

8.3.6. The **Contractor** shall carry on the Work with due diligence during all disputes or disagreements with the **Owner.** No Work shall be delayed or postponed pending resolution of any disputes or disagreements. The **Contractor** shall exercise reasonable precautions, efforts, and measures to avoid or mitigate situations that would cause Delays.

### 8.4 Substantial Completion:

8.4.1. The **Contractor** shall conduct inspections of the Work to verify the extent of completion. The **Contractor** shall provide to the **Owner** a list of items to be completed or corrected resulting from the inspections whenever the **Contractor,** upon completing all pre-requisite testing of the Work, considers that the Work, or any portion of the Work designated in the Contract Documents as having a separate, specified Substantial Completion, has progressed to the point that it is substantially complete.

8.4.2. Within a reasonable time after receiving the **Contractor's** list of items to be completed or corrected, the **Owner**, **Professional** and **Contractor** shall jointly conduct a Substantial Completion inspection. If, after consulting with the **Owner**, the **Professional** does not consider the Work, or portion of the Work inspected, substantially complete, the **Professional**, within twenty (20) Calendar Days after the inspection, will deliver to the **Owner** and **Contractor** a list of incomplete or Defective Work sufficient to demonstrate the basis for that determination.

8.4.3. If the **Professional** and **Owner** agree that the entire Work, or that the portion of the Work inspected, is substantially complete, the **Professional** will deliver to the **Owner** and **Contractor** a certificate of Substantial Completion with a Punch List.

The certificate shall (a) fix a reasonable date of Substantial Completion, (b) fix a date for completion of the Punch List to the satisfaction of the **Professional**, and (c) recommend the division of responsibilities between the **Owner** and **Contractor**. Neither the Work, nor any portion of the Work inspected, shall be substantially complete, unless the **Owner** can use the Work, or designated portion of the Work inspected, for the use intended.

8.4.4. Upon Substantial Completion of the Work, or designated part of the Work on which separate Substantial Completion and Contract Price are specified, payment may be made in full subject to (a) a withholding of two hundred percent (200%) of the value of any uncompleted Work, as determined by the **Professional**, and (b) any other deductions as the **Professional** may recommend or the **Owner** may withhold to cover Defective Work, liquidated damages and the fair value of any other items entitling the **Owner** to a withholding.

8.4.5. To the extent **Owner** training is required before Substantial Completion, the **Contractor** will provide the **Owner** copies of all related operating and maintenance (O&M) documentation before the start of training. Where **Owner** training for a portion of the Work is not required before Substantial Completion, the related O&M documentation will be provided no later than Substantial Completion. Final O&M documentation (with revisions made after Substantial Completion), will be furnished by the **Contractor** to the **Owner** before the request for final payment.

**8.5 Partial Use:**

8.5.1. Before Substantial Completion of the entire Work, the **Owner** may, at its sole option, use any portion of the Work for which a separate Substantial Completion has been specified in the Contract Documents. Before Substantial Completion of the entire Work, the **Owner** may, at its sole option, use any portion of the Work considered by the **Owner**, **Professional** and **Contractor** to be separately functioning Work that can be used without significant interference with the **Contractor's** completion of the balance of the Work, even though a Substantial Completion for such Work is not specified in the Contract Documents.

8.5.2. If the **Owner** decides to use any portion of the Work, it shall inform the **Contractor** in writing. Unless such portion of the Work has undergone a Substantial Completion inspection under paragraph 8.4.2, within a reasonable time after receipt of the notice, the **Owner**, **Contractor** and **Professional** shall jointly make an inspection to determine the extent of completion. If the portion of the Work inspected is substantially complete, the provisions of paragraph 8.4.3 shall be followed by the **Owner**, **Professional** and **Contractor**. If the portion of the Work inspected is not substantially complete, the **Professional** will prepare a list of items remaining to be completed or corrected before that portion of the Work is considered substantially complete. Upon completing the list, the **Professional** will deliver the prepared list of items to the **Owner** and **Contractor**.

8.5.3. There shall be attached to the list a written recommendation about the division of responsibilities between the **Owner** and **Contractor** for those matters enumerated in paragraph 8.6.1 with respect to that portion of the Work, pending Substantial Completion of that portion of the Work and the entire Work. During Partial Use, and before Substantial Completion of the portion of the Work under Partial Use, the **Owner** shall allow the **Contractor** reasonable access to complete or correct listed items and to complete other Work. The **Owner** will not start any Partial Use unless the property insurer, by endorsement or like acceptable procedure, has acknowledged receipt of notice of and consent to Partial Use.

**8.6 Division of Responsibilities:**

8.6.1. A certificate of Substantial Completion will include the **Professional's** recommendation about the division of responsibilities between the **Owner** and **Contractor** for utilities, security, safety, insurance, maintenance, etc. The **Owner** and **Contractor** will accept the division of responsibilities recommended by the **Professional** or shall negotiate a mutually agreeable split of responsibilities, which shall bind the **Owner** and **Contractor** when the **Owner** starts Partial Use.

**8.7 Suspension of Work:**

8.7.1. Suspension of Work Order – The **Owner** may, at any time, order the **Contractor** in writing to defer, stop, slow down, suspend or interrupt all or any part of the Work for such period as the **Owner** may determine appropriate for its convenience. If any such written order Delays performance for an unreasonable period, the **Owner** will amend the Contract Documents to provide for a corresponding adjustment in Contract Time and/or Contract Price (excluding Fee under paragraph 11.11).

8.7.2. Constructive Suspension of Work – If performance of all or any part of the Work is, for an unreasonable period, deferred, stopped, slowed down, suspended or interrupted by any other act or failure to act of the **Owner** or **Professional**, or act or event attributable to the **Owner** under the Contract Documents, the **Owner** will negotiate with the **Contractor** or authorize an adjustment in Contract Time and/or Contract Price (excluding Fee under paragraph 11.11.1) for any increase in the time required to complete the Work and/or the **Contractor's** cost of performance.

8.7.3. Suspension of Work Limitation – No adjustment in Contract Price under paragraphs 8.7.1 or 8.7.2 shall be made to the extent performance is delayed by any other cause, including any act or omission within the control of the **Contractor**. Further, no suspension of Work shall justify an increase in Contract Price or Contract Time unless the resulting Delay exceeds the time allowed in the Contract Documents for the act or failure to act.

8.7.4. If the **Contractor** believes a suspension of Work justifies an increase in Contract Price or Contract Time, the **Contractor** shall give prompt written notice to the **Owner** and submit a written proposal promptly after the extent of the Delay becomes known. However, no proposal or claim by the **Contractor** on account of a suspension of Work shall be allowed (a) for any Delay or costs incurred more than thirty (30) Calendar Days before the **Contractor** gives written notice (except for written orders under paragraph 8.7.1), or (b) if made after final payment.

**8.8 Sharing of Total Float On Non–Critical Paths:**

8.8.1. The Progress Schedule shall be in the form of a Critical Path Schedule, Total Float on non-Critical Paths shall be available to the **Owner**, to the extent the **Owner's** use is reasonable given the Total Float remaining for the Work affected. If any such **Owner's** use of Total Float causes Delay which materially increases the **Contractor's** cost to complete the Work affected, and the **Contractor** notifies the **Owner** in writing and proceeds to support the assertion to the **Owner's** satisfaction, the **Owner** will correspondingly adjust Contract Price for any such material changes in the **Contractor's** cost to complete the Work.

8.8.2. The amount of Total Float available in the Progress Schedule shall not be artificially reduced by suppressing Total Float merely for the sake of voiding Total Float. Total Float hidden through the use of such techniques as preferential sequencing; slow or late starts of follow-on trades; restraining a Contract Time by Work actually required for a later Contract Time; the use of small crews, extended durations, imposed dates; and so forth, shall be Total Float otherwise available for sharing with the **Owner** under the provisions of paragraph 8.8.1.

## ARTICLE 9 WARRANTY; TESTS, INSPECTIONS AND APPROVALS; CORRECTION OF WORK

### 9.1 Warranty:

9.1.1. The **Contractor** warrants to the **Owner** that all Work will conform to the Contract Documents and will not be Defective. Reasonably prompt notice of Defective Work of which the **Owner** or **Professional** has actual knowledge shall be given to the **Contractor**, but failure to do so will not void the **Contractor's** warranty unless actual prejudice results from such untimely notice. The **Contractor's** warranty excludes defect or damage caused by (a) abuse, modification by others, insufficient or improper operation or maintenance, or (b) normal wear and tear under normal usage.

9.1.2. Manufacturer warranties for materials and equipment received by the **Contractor** shall be assigned and promptly delivered to the **Owner**. Manufacturer warranties shall be in full force and effect for the entire duration of the Correction Period.

### 9.2 Tests, Inspections and Approvals:

9.2.1. The **Owner**, **Professional**, their representatives and consultants, testing agencies and those State agencies and Political Subdivisions with jurisdiction shall be permitted access to the Work at reasonable times while the Work is in progress for On-Site Inspection and/or inspection, testing or approval. The **Contractor** shall provide proper and safe conditions for such access. The **Contractor** shall give the **Professional** timely notice whenever any Work is ready for inspections, tests, or approvals, so that the **Professional** may observe such inspections, tests, or approvals. Tests, inspections, or approvals shall not in any way relieve the **Contractor** from the **Contractor's** obligations to perform the Work in accordance with the Contract Documents or warrant the Work as provided in the Contract Documents.

9.2.2. Unless otherwise provided in Section 00800 Supplementary Conditions, the **Owner** will retain a testing agency, directly or through the **Professional**, to perform inspections, tests or approvals required by the Contract Documents except for those inspections, tests or approvals specifically designated to the Contractor in the Contract Documents. The **Owner** will pay the charges of the testing agency, except if related to tests, inspections or approvals required by Law or otherwise charged to the **Contractor** under the provisions of paragraph 9.2.4 or 9.3.

9.2.3. The **Contractor** shall assume full responsibility for any testing, inspection, or approval (a) required by Law, (b) indicated in or required by the Contract Documents as designated to the Contractor, or (c) required for the **Professional's** acceptance of a Supplier, materials or equipment or mix designs submitted for prior approval by the **Contractor**. The **Contractor** shall (a) pay all related costs, except costs assumed by the **Owner** under paragraph 9.2.2, (b) schedule related activities, and (c) secure and furnish to the **Professional** the required certificates of inspection, testing or approval.

9.2.4. The **Contractor** shall be responsible for any testing, inspection or approval that reveals Defective Work, including an appropriate portion of the Delay and costs occasioned by such discovery of Defective Work. Examples of such costs assumed by the **Contractor** include, but are not limited to, charges of the **Professional** for repeated On-Site Inspections and, to the extent designated in the pertinent Specification, repeat testing, inspection, or approval charges by testing agencies.

### 9.3 Uncovering Work:

9.3.1. Any Work covered without the **Professional's** prior written concurrence shall, when requested by the **Professional**, be uncovered, exposed, or otherwise made available for On-Site Inspection, testing, inspection, or approval as the **Professional** may require, and replaced, if necessary. This requirement applies to Work, which requires On-Site Inspection by the **Professional**, based on the Contract Documents or on specific On-Site Inspection procedures of which the **Professional** notifies the **Contractor** in advance. This requirement also applies to Work, which is to be inspected, tested, or approved by others. The **Contractor** shall be responsible for any such uncovering, exposure, On-Site Inspection, testing, inspection, and satisfactory reconstruction, including an appropriate portion of the Delay and costs, unless the **Contractor** gave the **Professional** timely written notice of the **Contractor's** intentions to cover such Work and the **Professional** failed to act with reasonable promptness in response to such written notice.

9.3.2. The **Contractor**, at the **Professional's** request, shall uncover, expose, or otherwise make available for On-Site Inspection, inspection, testing or approval any covered Work otherwise not required to be observed or inspected, tested, or approved before covering, if the **Professional** determines that such covered Work shall be on-site inspected by the **Professional** or inspected, tested, or approved by others. The **Contractor** shall be responsible for any such uncovering, exposure, On-Site Inspection, inspection, testing and satisfactory reconstruction, including an appropriate portion of the Delay costs, whenever any such uncovered Work is found to be Defective. If, however, any such Work uncovered at the **Professional's** request is not found Defective, the **Owner** will amend the Contract Documents to provide for a corresponding adjustment in Contract Price and/or Contract Time.

### 9.4 Correction of Work:

9.4.1. Before the Correction Period – If required by the **Professional**, the **Contractor** shall correct all Defective Work, whether fabricated, installed or completed or not. If any Work is rejected by the **Professional** or if any testing, inspection, or approval reveals Defective Work, the **Contractor** shall promptly, as direct, remove the Defective Work from the site and replace it with non-Defective Work. The **Contractor** shall bear responsibility for its proportionate share of the Delay and costs resulting from the correction and/or the removal and replacement of Defective Work.

9.4.1.1. If the **Contractor**, within reasonable time after receipt of written notice, (a) fails to correct Defective Work or remove and replace rejected Work, or (b) fails to correct or complete items on any Punch List, or (c) fails to perform Work in accordance with the Contract Documents, or (d) fails to comply with any other provision of the Contract Documents, the **Owner**, after seven (7) Calendar

Days' written notice to the **Contractor**, may correct and remedy the deficiency. To the extent necessary to correct and remedy such deficiency, the **Owner** shall be allowed to exclude the **Contractor** from all or part of the site; take possession of all or part of the Work and stop related operations of the **Contractor**; take possession of the **Contractor's** tools, plant and office and construction equipment at the site; and incorporate into the Work materials and equipment for which the **Owner** has paid the **Contractor**. The **Contractor** shall allow the **Owner** and **Professional** access to the site as the **Owner** may require completing corrective and remedial action. The **Owner** shall be entitled to an appropriate decrease in Contract Price for all claims, costs, losses, damages, and Delay incurred or sustained by the **Owner** which are attributable to the **Contractor**. Costs assumed by the **Contractor** under this provision include, without limitation, costs of correction or removal and replacement of Defective Work, costs of repair and replacement of other work destroyed or damaged by the action and related charges of the **Professional**.

9.4.1.2. Instead of requiring correction or removal and replacement of any Defective Work, the **Owner**, with the advice of the **Professional**, may prefer to accept any Defective Work. In any such case, the **Contractor** shall bear its proportionate share of the Delay and costs associated with the **Owner's** determination to accept the Defective Work. If the **Owner's** acceptance of the Defective Work takes place before the **Professional's** recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents, and the Contract Price shall be adjusted accordingly.

9.4.2. Correction Period – The Contract Documents provide for one Correction Period for the entire Work, whether Partial Use of any portion of the Work is designated as eligible by the Contract Documents or not. The Correction Period shall start on the date of Substantial Completion of the Work, or on a later date, if so, provided in the Contract Documents. The Correction Period shall last one year, or longer, if so, specified in the Contract Documents.

9.4.3. Correction of Work During the Correction Period – The **Contractor** shall correct Defective Work or, if rejected by the **Owner**, remove from the site, and replace any Defective Work with non-Defective Work. The **Contractor's** corrective action shall be in accordance with the **Owner's** written instructions and shall be accomplished at the **Contractor's** sole expense. If the Defective Work causes an Emergency or unacceptable risk of loss or damage, the **Contractor** shall take immediate action to correct or remove and replace the Defective Work.

9.4.3.1. If the **Contractor** fails to take corrective action in accordance with the terms of any such **Owner** written instruction, the **Owner**, directly or through others under contract with the **Owner**, may correct or remove and replace the Defective Work. In any such case, the **Contractor** shall bear its proportionate share of all resulting claims, costs, losses, and damages. If the **Owner** and the **Contractor** are unable to agree as to the amounts due by the **Contractor** to the **Owner** under the provisions of this paragraph, the **Owner** may deliver a claim, in accordance with the procedures and within the deadlines set forth in Article 15. If the discovery of the Defective Work takes place after final payment and the **Contractor** fails to pay the **Owner** any of the amounts due under the provisions of this paragraph, the **Owner** shall demand due performance under Section 00610 Performance Bond and Article 14 or deliver a claim, in accordance with the procedures and within the deadlines set forth in Article 15, or both.

9.4.4 After the Correction Period – Until the period of limitation provided by Michigan Law, the **Contractor** shall promptly correct Defective Work upon receipt of written notice from the **Owner**. If appropriate under the circumstances or, in the event of an Emergency or unacceptable risk of loss or damage, the **Owner**, directly or through others under contract with the **Owner**, may correct or remove and replace the Defective Work.

9.4.5. It is not the intent of paragraph 9.4 or paragraph 9.5 to establish a period of limitations for the **Contractor's** warranty or to limit the obligations of the **Contractor** to warrant that the Work will not be Defective. The specified correction of Work requirements relates only to the specific obligation of the **Contractor** to correct or remove and replace Defective Work. The specified correction of Work requirements has no limitation on the rights of the **Owner** to have Defective Work corrected or removed and replaced, if rejected, except as otherwise provided by Michigan Law.

**9.5 Special Correction Period Requirements:**

9.5.1. Whenever the **Owner** undertakes Partial Use of any portion of the Work specifically designated as eligible for Partial Use in the Contract Documents, the warranties for all materials and equipment incorporated into that portion of the Work shall remain in full force and effect between the start of such Partial Use and the date when the Correction Period starts. If no separate price for such special correction period was requested in Section 00300 Bid Form and made part of the Contract Documents, the **Owner** will appropriately adjust the Contract Price.

9.5.2. Whenever the **Owner** undertakes Partial Use of any portion of the Work because any act or omission within the control of the **Contractor** Delays completion of the Work, or any portion of the Work, within a designated Contract Time, the warranties for all materials and equipment incorporated into that portion of the Work shall, at no adjustment in Contract Price, be maintained in full force and effect between the beginning date of such Partial Use and the date when the Correction Period stars.

9.5.3. The correction period for any Defective Work that is corrected or rejected and replaced within the last three (3) months of the Correction Period shall be extended by an additional six (6) months, starting on the date such Work was made non-Defective.

9.5.4. The Contract Documents may require the Correction Period to start on a date later than the date of Substantial Completion of the entire Work. If such is the case, and the **Owner** advances or defers the start of the Correction Period, the **Contractor** shall maintain the warranties for materials and equipment until the revised starting date of the Correction Period. If no separate price for such advance or deferment was requested in Section 00300 Bid Form and made part of the Contract Documents, the **Owner** will amend the Contract Documents to appropriately adjust the Contract Price.

**9.6 Special Maintenance Requirements:**

9.6.1. If the Contract Documents specify that the entire Work, or a portion of the Work, upon reaching Substantial Completion, shall not be placed in use by the **Owner**, the **Contractor** shall maintain the Work, or specified part of the Work, in good order and proper working condition and shall take all other actions necessary for its protection between the certified date of Substantial Completion and the date when the Work, or designated part of the Work, is placed in use.

9.6.2. If no separate price for such special maintenance period was requested in Section 00300 Bid Form and made part of the

Contract Documents, the **Owner** will amend the Contract Documents to appropriately increase the Contract Price.

## ARTICLE 10 CHANGES

### 10.1 Changes in the Work:

10.1.1. Changes in the Work – The **Owner** is entitled to make changes within the general scope of the Work consisting of (a) additions, deletions or other revisions in the Specifications and Drawings, any Means and Methods or the **Owner**-furnished lands, equipment, materials, or services, or (b) directing acceleration of the Work. Changes in the Work may be accomplished through negotiated, *bilateral* Change Orders or *unilateral* Change Orders or result from any other properly authorized written order from the **Owner** or **Professional** which represents a constructive change.

10.1.2. Negotiated Changes – The **Owner** may negotiate changes in the Work by directing the **Professional** to prepare a Bulletin in numerical sequence describing the change being considered. Upon receiving a Bulletin, the **Contractor** (with the appropriate Subcontractors) shall evaluate the described change and quote the Bulletin. In estimating adjustments in Contract Price and/or Contract Time, the **Contractor** shall follow the provisions, including the breakdown requirements, specified in Article 11.

10.1.3. Constructive Changes – Any written order (including instruction, interpretation, determination, authorization, or approval) from the **Owner** or **Professional** that causes a change in the Contract Documents shall constitute a change in the Work, provided the **Contractor** or the **Owner** gives prompt, written notice of a change to the other (with copy to the **Professional**) stating the date, circumstances, and source of the change.

10.1.3.1. Upon receipt and evaluation of the written notice, if the **Owner** agrees, with the **Professional's** advice, that a change within the general scope of the Work has been ordered, the **Owner** shall, by Change Order or Change Authorization, correspondingly amend the Contract Documents. If the **Owner** finds that a change within the general scope of the Work has not been ordered, and the **Contractor** disagrees, the **Contractor** may deliver notice of a claim and a claim Submittal in accordance with the procedures and within the deadlines set forth in Article 15.

10.1.3.2. **No proposal or claim** by the **Contractor** on account of changes under paragraphs 3.2.1, 10.1.3 or any other matter for which Contractor asserts added cost or time **shall be allowed unless initiated by written notice** of such proposal or claim to the Professional and Owner **within 21 days after the occurrence of the event giving rise to such proposal or claim or within 21 days after the contractor first recognizes the condition giving rise to the proposal or claim**. A full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with initial notice shall be delivered to Professional and Owner within 15 days of the notice, as noted in article 11.1.2, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

10.1.4. Unilateral Changes – If, in negotiations, the **Owner** and **Contractor** are unable to agree on the adjustment in Contract Price or Contract Time corresponding to any change in the Work, the **Owner** may issue a *unilateral* Change Order. Upon receiving any such Change Order, the **Contractor** shall promptly proceed or continue with the Work Involved as required by the Change Order.

10.1.4.1. *Unilateral* Change Orders may adjust Contract Price and/or Contract Time, as the **Owner**, with the advice of the **Professional**, may determine appropriate. Contract Price may be adjusted on a *lump sum* basis or an *actual cost*, *not to exceed* basis. If the **Contractor** disagrees with the extent of the adjustments in Contract Price and/or Contract Time made by any such *unilateral* Change Order, the **Contractor** may deliver notice of a claim and a claim Submittal in accordance with the procedures and within the deadlines set forth in Article 15.

### 10.2 Differing Subsurface or Physical Site Conditions:

10.2.1. The Contract Documents make available Authorized Technical Data concerning subsurface site conditions and physical conditions of existing surface and subsurface facilities at the site. Consistent with Section 00100 Instructions to Bidders, except for reasonable reliance on the accuracy of Authorized Technical Data, the **Owner** does not warrant that Authorized Technical Data is necessarily sufficient and complete for the purposes of selecting Means and Methods, initiating, maintaining, and supervising safety precautions and programs or discharging any other obligation assumed by the **Contractor** under the Contract Documents.

10.2.2. The **Contractor** or **Owner** shall notify the other in writing if the **Contractor** or **Owner**, respectively, discovers that (I) actual subsurface conditions or latent physical conditions of existing surface and subsurface facilities encountered at the site differ materially from those shown or indicated in the Contract Documents, or (II) unknown subsurface conditions or unknown physical conditions of existing surface and subsurface facilities encountered at the site, of an unusual nature, differ materially from those ordinarily encountered and recognized as inherent in work similar in character to the Work. A written notice from the **Contractor** shall be delivered promptly before the conditions are disturbed and before proceeding with the affected Work. A written notice from the **Owner** shall be delivered promptly after the **Owner** has knowledge of the differing subsurface or physical conditions.

10.2.2.1. Upon receipt or delivery of any such notice, the **Owner** shall investigate the differing conditions asserted. If, with the **Professional's** advice, the **Owner** determines that conditions on which the **Contractor** is entitled to rely do differ materially, the **Owner** will amend the Contract Documents to provide for any changes in the Work and adjustments in Contract Price and Contract Time made necessary by the differing conditions and any resulting Delay which is not reasonably anticipatable under the circumstances and which is attributable to the **Owner** and/or **Professional.** Unless the **Owner** and **Contractor** otherwise agree, no increase in Contract Time shall be made for any suspension of Work made necessary by any differing subsurface conditions, if the suspension of Work lasts less than ten (10) Calendar Days.

10.2.2.2. If the **Owner** determines that the actual conditions encountered and those conditions on which the **Contractor** is entitled to rely do not differ materially, and the **Contractor** disagrees with the **Owner's** determination, the **Contractor** may deliver notice of a claim and a claim Submittal in accordance with the procedures and within the deadlines set forth in Article 15.

10.2.2.3. No proposal or claim by the **Contractor** due to differing site conditions shall be allowed (a) if the **Contractor** knew of their existence before submitting its Bid or if those conditions could have been discovered by any reasonable examinations for which the **Contractor**, as Bidder, was made responsible under the Bidding Requirements, **and/or** (b) unless the **Contractor's written notice** is provided **within not more than 21 days after the contractor first**

**recognizes the condition giving rise to the proposal or claim and gives the Owner adequate opportunity to investigate the asserted differing site conditions**. A full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with initial notice shall be delivered to Professional and Owner within 15 days of the notice, as noted in article 11.1.2, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

10.2.3. The provisions of paragraph 10.2.2 through 10.2.2.3 also shall apply to situations where the **Contractor** or **Owner** discovers that any reference points provided by the **Owner** need correction to enable the **Contractor** to proceed with the Work.

**10.3 Responsibilities for Underground Utilities:**

10.3.1. The **Contractor** shall comply with 2013 PA 174, as amended, MCL 460.721 et seq., and all other Laws concerning Underground Utilities. In addition, the **Contractor** shall be responsible for immediately notifying the **Owner** of any contact with or damage to Underground Utilities, and for the safety, protection of and repairing of any damage done to any Work and any surface and subsurface facilities. Except as provided under 2013 PA 174, as amended, MCL 460.721 et seq., paragraph 10.3.2 or by any Allowance specific to Underground Utilities, the **Contractor** shall bear an appropriate portion of the Delay and costs relating to the obligations set forth in this paragraph.

10.3.2. Shown or Indicated – If the **Contractor** encounters Underground Utilities shown or indicated (whether in the Contract Documents or those documents itemized in Section 00210 Information for Bidders) that are inaccurately shown or are inaccurately located, responsibility for any damage shall be as provided in MCL 460.701 et seq. To the extent the Drawings and/or Specifications inaccurately show or locate, through error or omission, the actual physical conditions and/or location of existing Underground Utilities (when compared with the information and data provided by the owners of such Underground Utilities), the **Owner** will amend the Contract Documents to provide for a corresponding adjustment in Contract Price and/or Contract Time.

10.3.3. Not Previously Located – If the **Contractor** encounters not previously located Underground Utilities, which could not reasonably have been foreseen, the **Owner** will amend the Contract Documents to provide for any changes in the Work and corresponding adjustments in Contract Price and/or Contract Time made necessary by such changes in the Work and by any resulting Delay which is not reasonably anticipatable under the circumstances and which is attributable to the **Owner** and/or **Professional.**

**10.4 Hazardous Material Conditions:**

10.4.1. The **Contractor** shall use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material in accordance with all federal, state, and local Laws. If the **Contractor** encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the **Contractor** shall immediately stop all affected Work, give written notice to the **Owner** of the conditions encountered, and take appropriate health and safety precautions.

10.4.2. Upon receipt of the written notice, the **Owner** will investigate the conditions. If (a) the material is a Hazardous Material that may present a substantial danger and which was not described in the Drawings and/or Specifications, or identified in the Contract Documents as Work under the Contract Documents, and (b) the Hazardous Material was not brought to the site by the **Contractor**, or does not result in whole or in part from any violation by the **Contractor** of any Laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Materials, the **Owner** shall order a suspension of Work in writing. The **Owner** shall proceed to have the Hazardous Material removed or rendered harmless by negotiating a change in the Work with the **Contractor**, by means of separate contract or as the **Owner** may deem otherwise expedient. In the alternative, the **Owner** shall terminate the affected Work or the Contract for the **Owner's** convenience.

10.4.3. Once the Hazardous Material has been removed or rendered harmless by any of the means outlined in paragraph 10.4.2, the affected Work shall be resumed as directed in writing by the **Owner**. Any determination by the Michigan Department of Health & Humans Services and/or the Michigan Department of Environment, Great Lakes, and Energy (whichever is applicable) that the Hazardous Material has either been removed or rendered harmless shall be binding upon the **Owner** and **Contractor** for the purposes of resuming the Work. If any such incident with Hazardous Material results in Delay not reasonable anticipatable under the circumstances and which is attributable to the **Owner** or **Professional**, the **Owner** will amend the Contract Documents to provide for a corresponding adjustment in Contract Price or Contract Time, or both, made necessary by such Delay.

10.4.4. If the Hazardous Material was brought to the site by the **Contractor**, or results in whole or in part from any violation by the **Contractor** of any Law covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Materials or from any other act or omission within its control, the **Contractor** shall bear its proportionate share of the Delay and costs involved in cleaning up the site and removing and rendering harmless the Hazardous Material to the satisfaction of the **Owner**, State and all Political Subdivisions with jurisdiction. If the **Contractor** fails to proceed with due diligence to take appropriate action pursuant to applicable Law and consistent with the **Owner** requirements, the **Owner** may act accordingly, in which case the **Contractor** shall defend, indemnify, and hold harmless the **Owner** from and against all claims, as construed in paragraph 1.4, arising from the **Owner's** exercise of such appropriate action.

**10.5 Incidents with Archaeological Features:**

10.5.1. The **Contractor** shall at once notify in writing the **Owner** of any Archaeological Feature deposits that are encountered or unearthed during the execution of the Work. The **Contractor** shall protect the deposits in a satisfactory manner and no further disturbance of the Archaeological Features shall take place until Work is allowed to be resumed in the affected areas.

10.5.2. If the **Owner**, with the advice of the **Professional**, concludes that the Contract Documents require changes because of Archaeological Features encountered, the **Owner** will amend the Contract Documents to provide for any changes in the Work and corresponding adjustment in Contract Price and/or Contract Time made necessary by the changes due to the Archaeological Features encountered and by any resulting Delay which is not reasonably anticipatable under the circumstances, and which is attributable to the **Owner** and/or **Professional**

**10.6 Unit Price Work:**

10.6.1. If the Contract Documents specify Unit Price Work, the Contract Price shall contain the sum of each unit price times its estimated quantity. The **Contractor** shall be responsible for completing, within the Contract Times, one hundred twenty (120%) of the estimated quantities of Specified Unit Price Work and reasonable quantities of Contingent Unit Price Work.

10.6.2. The **Contractor** shall promptly, **before proceeding with any affected Unit Price Work**, deliver a written notice to the **Professional** (a) whenever actual quantities for an item of Specified Unit Price Work differs materially from those estimated and request an adjustment in the estimated quantity, or (b) requesting authorization to provide any or differing quantities of any item of Contingent Unit Price Work. The **Contractor** or the **Owner** shall submit to the other and the **Professional**, a proposal for adjusting that item's unit price and/or the Contract Time. The proposal shall be properly substantiated.

10.6.2.1. Promptly after being notified by the **Contractor**, the **Professional** will evaluate the affected Unit Price Work and provide its determination to the **Owner** and **Contractor**. If the **Owner** adjusts the estimated quantity of Specified Unit Price Work or authorizes any, or any additional, quantities of Contingent Unit Price Work, the **Contractor** shall proceed with that Unit Price Work as directed by the **Professional.** The **Contractor** shall proceed with the Unit Price Work regardless of whether the **Owner**, after conferring with the **Professional** determines that a variation in quantity justifies an adjustment in the unit price, or that the existing unit price is valid for the additional or reduced quantities, or that no adjustment in the Contract Time is warranted. In the event the **Contractor** disagrees with any such determination, the **Contractor** shall deliver a notice of claim and a claim submittal in accordance with the procedures and within the deadlines set forth in Article 15.

10.6.2.2. Any adjusted Unit Price agreed upon by the **Owner** will only apply to the actual quantities above one hundred twenty percent (120%) or to the actual quantities less than eighty percent (80%) of the estimated quantity. For additional quantities over one hundred twenty percent (120%) or reduced quantities below eighty percent (80%) of the estimated quantity, the **Owner** may negotiate a Unit Price with the **Contractor**, or direct a unilateral change as provided by Article 10 or rebid that Work. In no case, however, will a Unit Price change resulting from a reduction in quantity be renegotiated such that the changed Unit Price produces a modified Bid Price for any line item that exceeds the initial Bid Price for that line item.

10.6.3. No adjustment due to quantity variations shall be allowed (a) unless the **Contractor** met the notice requirements of paragraph 10.6.2, (b) to the extent that the Bid Price for a line item will increase due to reduced quantities at a higher unit, (c) for under runs in any quantities of Contingent Unit Price Work, unless the unit price times the estimated quantity exceeds the lesser of $50,000.00 or two percent (2%) of the Contract Price, or (d) if any unit price increase results in whole or in part from any act or omission within the control of the Contractor (errors in the Contractor's Bid, unbalanced unit prices, etc.).

**10.7 Cash Allowances; Provisionary Allowances:**

10.7.1. The **Contractor** shall obtain the **Professional's** written acceptance before providing materials, equipment or other items covered by a Cash Allowance. Payments under a Cash Allowance shall be on actual costs, and exclude costs for supervision, handling, unloading, storage, installation, testing, etc., which shall be considered to be included within other elements of the Contract Price. Payments within the limits of an Allowance shall exclude Fee and Bond and insurance premiums since these are already included within other elements of the Contract Price.

10.7.2. The **Contractor** shall complete Work covered by Provisionary/Contingency Allowances as approved in writing by the **Owner** and directed by the **Professional**. The Cost of the Work Involved for Work authorized under any Provisionary/Contingency Allowance shall be determined pursuant to Article 11, except those payments within the limits of any Allowance shall exclude Bond and insurance premiums under paragraph 11.8.1.5, since these costs are already included within other elements of the Contract Price.

**10.8 Change Orders; Change Authorizations:**

10.8.1. The terms "Change Order" and "Change Authorization" are defined in Section 00020 Glossary. Further, Division 1 includes prototype Change Order and Change Authorization forms which shall be used by the **Owner** and **Contractor** in connection with modifications to the Contract.

*10.8.2. A *bilateral* Change Order which does not incorporate a **Contractor** reservation of rights to claim additional adjustments, shall memorialize the **Owner's** and **Contractor's** agreement as to the adjustments in Contract Price and/or Contract Time made by the Change Order. Any such *bilateral* Change Order shall constitute an all-inclusive settlement for all changes, Delay, and costs, whatsoever, and the **Contractor's** signature on the Bulletin and proposal incorporated into that Change Order represents a waiver of all rights to file a subsequent proposal or a claim under Article 15 on account of that Change Order or the Work.

10.8.3. A presumed *bilateral* Change which includes a proposal signed by the **Contractor** with a reservation to claim additional adjustments shall be regarded as a notice of claim as to those adjustments and shall be pursued as provided in Article 15, except as the **Owner** and **Contractor** may otherwise agree.

10.8.4. A Change Order issued by the **Owner** after unsuccessful Contract Price and/or Contract Time negotiations with the **Contractor** and stating the **Owner's** proposed basis for the necessary adjustments in Contract Price and/or Contract Time shall be a *unilateral* Change Order.

10.8.5. The **Owner** will issue Change Orders to amend the Contract Documents for changes in the Work and for any adjustments in Contract Price or Contract Time agreed to in total or in part by both the **Owner** and **Contractor**; or to correspondingly adjust the Contract Price for Work furnished under Cash Allowances, Work completed that was authorized under Provisionary/Contingency Allowances and actual quantities of Unit Price Work. Amounts for Work Involved in a Change Order signed by the **Owner** may be included in subsequent Requests for Payment.

10.8.6. The **Owner** may use Change Authorizations (a) to document agreed-upon minor variations in the Work, and/or (b) to document or order changes in the Work not warranting any adjustment in Contract Price or Contract Time. Examples of the second category include but are not limited to the **Owner's** authorization for drawing payments against a Provisionary/Contingency Allowance or the **Owner's** consent to quantity variations not increasing the Contract Price.

10.8.7. Before, or in conjunction with, the **Professional's** certification of final payment, an appropriate Change Order will be issued, with the **Professional's** advice, to correspondingly adjust the Contract Price for the value of Work furnished under Cash Allowances, Work completed that was authorized under Provisionary/Contingency Allowances and actual quantities of Unit Price Work.

10.8.8. Subject to the provisions of paragraphs 10.8.2 through 10.8.4, it is a requirement of the Contract Documents that all Change Orders duly signed and issued by the **Owner** shall incorporate Bulletins, which are duly signed by the **Contractor**, regardless of whether the **Contractor** uses a reservation of rights.

## ARTICLE 11 CHANGES IN CONTRACT PRICE; CHANGES IN CONTRACT TIME

### 11.1 General Provisions:

11.1.1. Contract Price or Contract Time may be changed only by Change Order duly signed by the **Owner**. Neither Contract Price nor Contract Time may be changed by Change Authorization (subject to the provisions for constructive changes).

11.1.2. **Contractor** proposals for adjusting Contract Price and/or Contract Time shall be due within fifteen (15) Calendar Days after the **Contractor** receives a Bulletin or delivers to the **Owner** a notice of a change or a Delay. Proposals not complying with the requirements of paragraphs 11.1.4 and 11.1.5 shall be returned for resubmission. This turnaround period is of the essence and any Delay in delivering a bulletin or resulting from resubmission of an incomplete Bulletin shall not justify any increase in Contract Price or Contract Time. The **Owner,** in its sole discretion, may extend or shorten the 15–Day period for Bulletin quotations estimated at more than $250,000 or less than $25,000.

11.1.3. The **Professional** will review each **Contractor** proposal, and the **Professiona**l will recommend to the **Owner**, within a reasonable time, whether or not the Bulletin quotation is acceptable. Due to the time required to obtain **Board** and **Director** approvals, a **Contractor** proposal shall be irrevocable for sixty (60) Calendar Days after it is submitted to the **Professional**.

11.1.4. **Contractor** proposals or claims for Work Involved shall detail all affected items of Work, whether increased, revised, added, or deleted, and shall be fully documented and itemized as to (a) individual adds and deducts in Work quantities and labor manhours; (b) corresponding itemized Cost of Work Involved (paragraphs 11.4 through 11.9; and (c) Fee. Proposals or claims including Fee of five percent (5%) for Work Involved of a Subcontractor shall nominate the performing Subcontractor and enclose the Subcontractor's pricing data, if available.

11.1.5. For **Contractor** proposals or claims for adjustments in Contract Price arising from Delays (whether or not such Delays extend any Contract Time or any early completion date), the **Contractor's** estimates shall be as comprehensive and detailed as may be appropriate to support the proposal or claim. Examples of germane information include labor productivity, labor manpower levels, production data and Progress Schedule revisions.

11.1.6. If the **Contractor's** surety requires notice of any adjustment in Contract Price and/or Contract Time, whether made pursuant to Article 11 or otherwise; any "or equal" material or equipment or substitution approved by the **Professional**; any change within the scope of Article 10; or any other addition, deletion or revision in the requirements of the Contract Documents, whether made by Change Order or Change Authorization, it shall be the **Contractor's** responsibility, and not the **Owner's**, to give notice to the **Contractor's** surety. It is agreed that none of these modifications to the Contract Documents and/or the Work shall invalidate the Agreement.

### 11.2 Changes in Contract Time:

11.2.1. An extension in Contract Time will be justified only to the extent that the **Contractor** demonstrates, with comprehensive and detailed documentation, that the Delay is not reasonably anticipatable under the circumstances, is not caused by act or omission within the control of the **Contractor**, and, furthermore, that the Delay necessarily extends the Work, or portion of the Work in question, beyond the pertinent Contract Time. If the **Owner** determines that the **Contractor's** documentation is insufficient to allow a thorough evaluation of the time extension request, the **Contractor** shall further support the request through a detailed analysis of the Progress Schedule Revision Submittal.

11.2.2. Examples of events that may justify an extension in Contract Time include acts of God or the public enemy; acts of the U.S. Government, the State or a Political Subdivision, each acting in its public capacity (including acts as permitting agency); acts of a Public Utility acting in its public capacity; fires, floods, epidemics, quarantine restrictions; strikes, freight embargoes; unusual weather (unusual in the sense of frequency or severity vis-à-vis the prior five (5) year average); unusually severe shortages of construction materials (considering all feasible sources of supply); Underground Utilities which the Contract Documents, through error or omission, inaccurately show or indicate; Underground Utilities not previously located; objection, for the **Owner's** convenience, to a nominated Subcontractor; Archaeological Features; suspension of Work; changes in the Work, differing site conditions; variation in quantities; and Delay, as provided in this paragraph, of Subcontractors or Suppliers, at any tier, not caused in whole or in part by any act or omission within the control of both the **Contractor** and any such Subcontractors and Suppliers.

11.2.3. If upon evaluation of the **Contractor's** analysis, the **Owner** approves an extension in Contract Time for Delay not caused in whole or in part by any act or omission within the control of the **Owner** and/or **Professional**, the **Owner** shall authorize the necessary adjustment in Contract Time *only*. If the **Owner** approves an extension in Contract Time for Delay caused in whole or in part by any act or omission within the control of the **Owner** and/or **Professional**, the **Owner** shall authorize the necessary adjustments in Contract Time and Contract Price.

### 11.3 Methods for Making Adjustments in Contract Price:

11.3.1. The method to be used to determine any adjustment in Contract Price shall be selected by the **Owner** from one of the

methods in paragraph 11.3.1.1 through 11.3.1.3, or otherwise shall be limited to the methods in paragraph 11.3.1.4 or 11.3.1.5.

11.3.1.1. If any Work Involved is covered by lump sum prices or unit prices contained in the Contract Documents, those prices shall be used (subject to the terms and conditions of paragraph 10.6 Unit Price Work). In the latter case, the unit prices shall be applied to the quantity of Unit Price Work Involved.

11.3.1.2. If any Work Involved is not covered by lump sum or unit prices contained in the Contract Documents, then application of a lump sum price may be negotiated using the **Contractor's** itemized estimate of the *anticipated* Cost of the Work Involved, as specified in this Article, and a Fee for the Work Involved, as specified in paragraph 11.11.1.

11.3.1.3. If the Work Involved is not covered by the first two methods, the **Owner** may direct the **Contractor** to proceed with the Work Involved on an *actual cost* basis, with or without a guaranteed maximum, based on an itemized breakdown of the *actual* Cost of the Work Involved, as specified in this Article, and a Fee for the Work Involved, as specified in paragraph 11.11.2.

11.3.1.4. If the Work Involved is not covered by the first two methods, the **Owner** may direct the **Contractor** to proceed through a *unilateral* Change Order on a lump sum basis or a not-to-exceed basis, based on the **Professional's** estimate of the anticipated Cost of Work Involved and a Fee for the Work Involved, as specified in paragraph 11.11.1 or 11.11.2.

11.3.1.5. If payment for the Work Involved is to be determined by the Michigan Court of Claims or a AAA arbitration panel, it is agreed by the **Contractor** that the *actual cost* and Fee method in paragraph 11.3.1.3 shall represent the appropriate method for determining such payment.

11.3.2. Items making-up the Cost of the Work Involved shall be allowable to the extent (a) consistent with those prevailing in the Project locality, (b) necessary, reasonable, and clearly allocable to the Work Involved, and (c) limited to labor costs, Subcontract costs, material and equipment costs, construction equipment costs and general conditions costs, as specified in this Article.

**11.4 Labor, Subcontract and Material/Equipment Costs:**

11.4.1. The Cost of any Work Involved includes the **Contractor's** payroll costs for craft workers resident at the site (through crew foremen) assigned to furnishing and incorporating materials and equipment into the Work Involved. If craft labor manhours exceed those that can be gleaned from the Means Cost Data, or other cost guide acceptable to the **Owner**, the **Contractor** shall provide proper justification, which shall be acceptable to the **Professional**.

11.4.1.1. Payroll costs shall include wages, labor burdens and a factor for field supplies and purchase costs (less market value if not consumed) of tools not owned by the workers. Labor burdens shall be certified by an authorized financial representative of the **Contractor** and may include social security, unemployment taxes, workers' compensation, health and retirement benefits, vacation, and holiday pay. The factor for field supplies and tools (individually valued at less than $1,000.00) shall not exceed four percent (4%) of the wages without burdens, unless the **Contractor** furnishes detailed data which supports a higher factor. For actual payroll costs, **Contractor** time sheets verified by the **Professional** and/or certified payrolls shall be the only valid Records. For actual payroll costs under paragraph 11.3.1.5, time sheets shall be valid only if they expressly correlate to the Work Involved and were recorded at that time and/or used for certified payrolls.

11.4.2. The Cost of the Work Involved includes the **Contractor's** costs for the labor costs, (lower tier) Subcontract costs, material and equipment costs and general conditions costs of Subcontractors nominated for the Work Involved. Except for a higher six percent (6%) limit on the factor for field supplies and small tools, the methods for calculating Subcontractors' costs shall be the same as those for **Contractor** costs, except that the term "Subcontractor" shall replace the term "**Contractor**," context permitting. If the **Owner** and **Contractor** agree in advance, the **Contractor** shall obtain detailed quotations and shall nominate at least two (2) Subcontractors, acceptable to both the **Contractor** and **Professional**, for selection by the **Owner**.

11.4.3. The Cost of any Work Involved includes the **Contractor's** costs for materials and equipment, including transportation, storage, and necessary Suppliers' field services. All trade discounts, rebates and refunds and returns from surplus sales that can be realized at the time of pricing shall accrue to the **Owner**, and the **Contractor** shall make arrangements so that they may be obtained. If the Bulletin for the Work Involved *lists* specific Suppliers, the **Contractor** shall obtain written quotations from them and shall nominate one of the *listed* Suppliers to allow a comprehensive review of the proposal by the **Professional**. Invoices segregating items relating to the Work Involved shall be valid Records in support of actual Supplier costs.

**11.5 Construction Equipment Costs:**

11.5.1. The cost of any Work Involved includes costs for individual construction equipment with replacement value in excess of $1,000.00. Transportation, loading and unloading, installation, dismantling and removal and shipping costs shall be allowed to the extent required by the Work Involved and reasonable under the circumstances. Equipment costs shall cease when the equipment is no longer needed for the Work Involved. Payroll costs for labor operating the equipment are as specified in paragraph 11.4.1. Equipment costs shall be computed using the same accounting and estimating rules and prices, whether related to added or deleted Work.

11.5.2. When determining actual construction equipment costs (a) under paragraph 11.3.1.3, daily logs of the equipment, operators, and actual usage, verified by the **Professional**, shall be the valid Records; (b) under paragraph 11.3.1.5, such daily Records shall be valid only if developed when any such Work Involved was performed and used for accounting purposes.

11.5.3. Rented (or owned) equipment, idled solely by actions of the **Owner** or **Professional**, shall be paid at the rate for rented equipment (or at fifty percent (50%) of the rate for owned equipment) provided the idle period exceeds what is normal for the equipment and occurs during normal working hours.

**11.6 Rented or Leased Construction Equipment:**

11.6.1. Construction equipment rented or leased from third parties shall be priced using the rates negotiated between the **Owner** and **Contractor**. If no agreement is reached, those rates listed in the Rental Rate "Blue Book" published by PRIMEDIA Information Inc. of San Jose, Ca, for the region where the Project is

located applicable to the equipment (model number and year) shall be used. For equipment leased or rented on an hourly basis, the rate for second or third shifts shall not exceed fifty percent (50%) of the base rate. Operating costs shall not exceed the hourly operation rate in the Blue Book. Hourly rates for equipment previously in use at the site for a month or longer shall use the monthly rate divided by 176 hours. Equipment previously in use for only one week or not previously in use at the site shall be invoiced to the **Owner** using the following schedule of equipment use:

| | |
|---|---|
| Less than 8 hours | Hourly Rate |
| 1 Day but less than 7 Calendar Days | Daily Rate |
| 1 week but less than 30 Calendar Days | Weekly Rate |
| 30 Calendar Days or more (when in use) | Monthly Rate |

**11.7 Owned Construction Equipment:**

11.7.1. Construction equipment owned by the **Contractor** or rented or leased from lessors associated with or owned by the **Contractor**, shall be priced using the rates negotiated between the **Owner** and **Contractor** based on the **Contractor's** normal accounting practices. If no agreement is reached, the hourly rates in the "Contractor's Equipment Cost Guide," published by PRIMEDIA Information Inc. for the region where the Project is located shall be used. Operating costs shall not exceed the hourly operation rate in the Blue Book. For multiple shifts, rates shall not exceed the shift Work adjustments recommended in the Cost Guide.

**11.8 General Conditions Costs:**

11.8.1. The Cost of any Work Involved may include necessary general conditions costs to the extent those costs increase or decrease on account of, or are directly attributable to, the performance of Work Involved, or are required due to an extension in Contract Time or Delay under paragraph 11.13.5. Categories of general conditions which are allowable under this paragraph (subject to the provisions of paragraph 11.9) include:

11.8.1.1. To the extent agreed to in advance by the **Owner**, payroll costs for the **Contractor's** project manager or construction manager, but not both, for Work activities conducted at the site.

11.8.1.2. Payroll costs for the **Contractor's** superintendent and full-time general foremen, if any are assigned to the Work, for Work Involved performed beyond normal working hours and/or to the extent those costs and subsistence expenses arise solely from an extension in Contract Time or Delay under paragraph 11.13.5.

11.8.1.3. If agreed to in advance by the **Owner**, payroll costs for management personnel resident and working at the site and for workers not covered under paragraph 11.4.1, resident at the site and engaged as support workers (i.e., loading/unloading, clean-up, etc.) to workers covered under paragraph 11.4.1.

11.8.1.4. Costs of office and temporary facilities at the site, including office materials, office supplies, office equipment, minor expenses, utilities, fuel, sanitary facilities, internet, and telephone service at the site, provided those cost arise solely from an extension in Contract Time or Delay under paragraph 11.13.5.

11.8.1.5. Costs of liability insurance premiums for insurance not included within the labor burdens charged under paragraph 11.4.1, and costs of Bond premiums.

11.8.1.6. Costs of consultants not in the direct employ of the **Contractor**, or Subcontractors not covered under paragraph 11.4.2; to the extent authorized by the **Owner** before proceeding with the Work Involved, and provided that those costs are neither covered by paragraph 11.4 nor excluded by paragraph 11.10; and

11.8.1.7. Taxes on the Work Involved, and for which the **Contractor** is liable; and royalty payments and fees for permits and licenses, provided they relate solely to the Work Involved.

**11.9 Limitations on Allowable Costs:**

11.9.1. The **Contractor** shall not include as part of the Cost of any Work Involved any construction equipment costs, small tool costs, or general conditions costs that do not increase on account of, or are not directly attributable to, the furnishing and/or performance of any Work Involved. Examples of such unallowable costs include:

11.9.1.1. Charges for **Contractor's** superintendent, general foremen and management personnel assigned full-time to the Work, if the charges relate to Work Involved which does not extend the Contract Time or cause Delay under paragraph 11.13.5, or to Work Involved not performed beyond normal working hours.

11.9.1.2. Fixed percent mark-ups for construction equipment (as opposed to specific construction equipment costs); or

11.9.1.3. Cost of field supplies and/or small tools solely for extensions in Contract Time or Delay under paragraph 11.13.5.

11.9.2. Changes in Contract Price for extensions in Contract Time or Delay under paragraph 11.13.5 shall exclude any costs that are unaffected or do not relate to the extension in Contract Time or the Delay in early completion. Examples include:

11.9.2.1. Operating costs of construction equipment assigned to the Work for the duration, to the extent used in the incorporation of materials and equipment into the Work, provided the equipment is not subject to increased usage because of the extension in Contract Time or the Delay in early completion.

11.9.2.2. Operating costs plus owned/rental costs of construction equipment brought to the site for a specific activity (crane used for specific lifts, concrete pump used for pours, etc.), provided the equipment is not subject to increased usage because of the extension in Contract Time or the Delay in early completion.

11.9.2.3. Construction equipment and site facilities which are fully paid under the Contract Price for the Work, as awarded.

11.9.3. The **Contractor** shall not include as part of the Cost of any Work Involved acceleration costs incurred, for the **Contractor's** benefit, to make-up Delay which warrant extensions in Contract Time but do not justify increases in Contract Price.

**11.10 Costs Covered by the Fee for the Work Involved (and not Allowable as Cost of the Work Involved):**

11.10.1. **Contractor** administrative costs and home office overhead, whether at the **Contractor's** principal or branch offices, shall not be allowable as elements of the Cost of Work Involved. Rather, those administrative costs and home office overhead shall be non-reimbursable expenses covered by the Fee for the Work

Involved. Examples of administrative costs or home office overhead covered by this provision include, without limitation:

11.10.1.1. Payroll costs and other compensation of executives, general and administrative managers, estimators (except to the extent agreed to in advance by the **Owner**), claim consultants, attorneys, accountants, labor relation coordinators, purchasers, expeditors, and other administrative staff, whether resident at the **Contractor's** principal or branch offices.

11.10.1.2. Payroll costs and other compensation of project managers, construction managers, architects, engineers, schedulers, detailers, safety personnel, clerks, and other administrative staff not resident at the site and who are not part of the **Contractor's** general conditions personnel contingent.

11.10.1.3. Costs of engineers, architects, accountants, consultants, attorneys, and others, in the direct employ of the **Contractor** or otherwise, utilized for services related to a controversy or claim about the acceptability of the Work.

11.10.1.4. Costs incurred in the preparation of Contract Change Orders (whether or not ultimately authorized by the **Owner**), except as otherwise authorized by the **Owner**; and costs incurred in the preparation or filing of claims; and

11.10.1.5. Any interest on the Work Involved, unless otherwise allowed by the Michigan Court of Claims or an arbitration panel; charges for delinquent payments; lost interest on unpaid withholdings; lost profits and lost opportunities; and home office storage and yard facilities.

**11.11 Limits on the Fee for the Work Involved:**

11.11.1. Any adjustment in Contract Price made by *bilateral* Change Order which stipulates a lump sum price (developed from the **Contractor's** itemized estimate of the *anticipated* Cost of the Work Involved) without incorporating a **Contractor** reservation of rights to claim additional adjustments, shall include a Fee for costs under paragraph 11.10 and for profit, not to exceed the following:

11.11.1.1. For Work Involved to be self-performed by the **Contractor**, the **Contractor's** Fee shall not exceed fifteen percent (15%) of the Cost of the Work Involved. For Work Involved to be performed by any nominated Subcontractor, regardless of tier, the nominated, performing Subcontractor's Fee also shall not exceed fifteen percent (15%) of the Cost of the Work Involved.

11.11.1.2. For Work Involved to be performed by any nominated Subcontractor, the **Contractor's** Fee shall be five percent (5%) of the performing Subcontractor's Cost of the Work Involved, excluding that Subcontractor's Fee. For Work Involved of any nominated lower tier Subcontractor, any corresponding higher tier Subcontractors and the Contractor shall share equally a Fee of five percent (5%) of the performing lower tier Subcontractor's Cost of the Work Involved, excluding the lower tier Subcontractor's Fee.

11.11.2. Any adjustment in Contract Price made by a *bilateral* Change Order (whether based on a *lump sum* or on the *actual cost* of the Work Involved) which incorporates a **Contractor** reservation of rights to claim additional adjustments, shall include a Fee of only two-thirds (2/3) of the Fee otherwise resulting from the application of paragraphs 11.11.1 or 11.11.2.

11.11.3. The credit to be allowed to the **Owner** for any individual change consisting of deletions, or additions and deletions, that yields a negative net Cost of the Work Involved, shall be the amount of the net decrease and, if the negative net Cost of the Work Involved exceeds $10,000.00, a Fee credit of one-fifth of the Fee resulting from the application of paragraphs 11.11.1.1 through 11.11.1.3 shall be added to that amount.

11.11.4. For any change in the Work combining additions, revisions, and deletions, one single Fee for the Work Involved shall be added to the net Cost of the Work Involved, unless the change in the Work combines self-performed **Contractor** Work and Subcontractor Work, or Work of more than one Subcontractor, or both, in which case separate Fees for the **Contractor** Work and for the Subcontractor Work shall be calculated, as appropriate.

11.11.6. In the event unrelated changes in the Work are grouped in a Bulletin, or included in a claim, and each of the changes yields a net increase or decrease in the Cost of the Work Involved, the combined Fee for the changes in the Work so grouped shall be computed as the sum of the individual Fees otherwise calculated under paragraphs 11.11.1 through 11.11.5.

**11.12 Fee for Unabsorbed Home Office Overhead:**

11.12.1. It is intended that the Fee for the Work Involved allowed under paragraph 11.11 shall be included with any adjustment in Contract Price for any Cost of Work Involved. However, the Fee under paragraph 11.11.1 shall not be intended to cover unabsorbed home office overhead resulting from an extension of the Contract Time stated in paragraph 4.1.1 of Section 00500 Agreement. When justified under the Contract Documents, Fee for unabsorbed home office overhead shall be calculated as detailed in paragraph 11.12.2.

11.12.2. If an extension of the Contract Time stated in paragraph 4.1.1 of Section 00500 Agreement and an increase in Contract Price for such an extension in Contract Time is justified under the Contract Documents, the **Owner** shall negotiate with the **Contractor** the reimbursement of an amount for the **Contractor's** home office overhead (under paragraph 11.10) that will be or were unabsorbed before the expiration of that Contract Time. Any such reimbursement shall be based on the lesser of: (a) the product of the ratio of the **Contractor's** home office overhead to its contract billings times the Contract Price in paragraph 3.1 of Section 00500 Agreement that remains unbilled on the expiration of that Contract Time, or (b) that amount derived from the Eichleay formula.

**11.13 Changes in Contract Time for Early Completion:**

11.13.1. The Contract Times specified in paragraph 4.1 of Section 00500 Agreement represent the **Professional's** best estimate of the time required to complete the Work and take into account comparisons with completed work similar in scope and character to the Work and constructed under similar conditions.

11.13.2. Since "time is of the essence" in performing this Contract, any early completion Rev. 0 Progress Schedule considered acceptable by the **Owne**r shall be construed as setting forth a corresponding amount of Contract Float, unless the **Contractor** delivers notice of a request for a shortening of the Contract Time within thirty (30) Calendar Days after receiving the **Owner's** written notice of "no objection" to such Rev. 0 Progress Schedule.

11.13.3. If the **Contractor** requests that the Contract Times be shortened to eliminate the Contract Float on any such early completion Progress Schedule, and the **Owner** agrees to the **Contractor's** request, the **Owner** and **Contractor** may negotiate a reduction in the affected Contract Time. Concurrently, the **Owner** will develop a level of liquidated damages appropriate to the revised Contract Time(s) or, if more appropriate under the circumstances, the **Owner** will specify actual damages, applicable from the negotiated, earlier Contract Time to the Contract Time under revision. In such case, the aggregate actual damages shall not exceed the sum liquidated damages that may have resulted from the originally specified liquidated damages. Such agreement shall be memorialized through an appropriate Change Order.

11.13.4. If the **Owner** and **Contractor** are unable to agree to such reduction in the Contract Times, or the **Contractor** rejects the **Owner's** assessment of liquidated or the stipulation of actual damages, or both, the Contract Times in question shall remain unaltered and the early completion Progress Schedule shall be employed as provided in the Contract Documents.

11.13.5. To the extent that the Progress Schedule supports an early completion date, and a Delay extends performance of the Work beyond the **Contractor's** early completion date but not beyond the corresponding Contract Time, if the **Contractor** pursues an increase in Contract Price for such Delay in early completion, the **Owner** shall consider such request, subject to the following: (a) the early completion is reasonably achievable, i.e., includes proper allowances for weather, **Owner** and **Professional** activities, rework and other foreseeable events within the control of the **Contractor**, (b) the Progress Schedule used to support the request is loaded with Activity manpower data, and (c) the adjustment in Contract Price shall equal fifty percent (50%) of the **Contractor's** Delay costs otherwise allowable under this Article.

11.13.6. As a point of emphasis, under these provisions, an increase in Contract Time and an increase in Contract Price equaling the **Contractor's** costs occasioned by the Delay (as opposed to only fifty percent (50%) of the **Contractor's** Delay costs), shall be justified only if the Delay attributable to the **Owner** and/or **Professional** necessarily extends Substantial Completion of the Work, or the portion of the Work having a specified Contract Time, beyond the correspondingly specified Contract Time.

**11.14 Access to Records:**

11.14.1. The **Contractor** shall maintain and keep and shall require all Subcontractors and Suppliers to maintain and keep, in accordance with generally accepted accounting principles, Records pertaining to the bidding, award and performance of the Work, including, but not limited to payroll and employment Records and all data used in estimating the **Contractor's** Bid and in pricing and negotiating Work covered by any Change Order, Change Authorization, proposal or claim.

11.14.2. For changes payable on an *actual cost* basis, or in the event of any claim, dispute, litigation, audit exception or appeal or termination, the **Owner** and any of the **Owner's** duly authorized representatives shall have access to those Records for the purpose of inspection, audit/review and scanning/copying. The **Contractor** shall provide appropriate facilities for access promptly after receiving a request. The **Owner** and any of its duly authorized representatives shall have the right to interview **Contractor** employees. The **Contractor** shall make employees available on Business Days between 8:00 AM and 4:00 PM, as requested.

11.14.3. Payroll and other employment Records of workers assigned to the site, including apprentices and trainees, maintained to comply with the requirements of this provision, shall contain the name and address of each worker, correct wage classification, rate of pay (including contributions, or costs assumed to provide, for fringe benefits), daily and weekly number of hours worked, deductions made, and actual wages paid. The **Contractor** shall maintain Records that show: (a) the anticipated costs or actual costs incurred in providing such benefits, (b) that the commitment to provide such benefits is enforceable, and (c) that the plan or program is financially responsible and has been communicated in writing to the workers affected.

11.14.4. Access to Records, as prescribed in this paragraph, shall be allowed at any time during the execution of the Work and shall remain in full force and effect for five (5) years after final payment, or termination (in the event of termination), or date of final resolution of any dispute, litigation, audit exception or appeal – whichever event actually applies to this Contract.

**11.15 Price Reduction for Defective Cost and Pricing Data:**

11.15.1. If at any time during the prosecution of the Work, there is good cause to doubt the **Contractor's** compliance with the Defective Cost and Pricing Data requirements of this paragraph 11.15, the **Owner** shall be entitled to make an appropriate withholding from any payment otherwise owed to the **Contractor**.

11.15.2. Whenever the **Contractor** signs a proposal for a Contract Price or Contract Time adjustment, a Change Order or a claim settlement, the **Contractor** will be deemed to have certified, to the **Contractor's** best knowledge and belief, that the representations made and data submitted in pricing and negotiating the Cost of the Work Involved in that price proposal, Change Order, or claim settlement: (a) were made in good faith and are consistent with the facts, (b) are consistent with the provisions of Articles 10 and 11, and (c) are complete, accurate and current as of the date agreement was reached on the corresponding adjustments in Contract Price and/or Contract Time. This certification shall apply in each and every respect to any Subcontractor and Supplier who signs any cost and pricing data attached to any such a proposal for a Contract Price or Contract Time adjustment, Change Order or claim settlement.

11.15.3. If any adjustment in Contract Price or Contract Time made by any Change Order, claim or dispute settlement was increased by a material and significant amount because the **Contractor**, or any Subcontractor or Supplier, at any tier, made representations or furnished cost or pricing data of any kind that were false, contained math errors or were incomplete, the Contract Price shall be correspondingly reduced by Change Order.

## ARTICLE 12 PROGRESS PAYMENTS; FINAL PAYMENT

**12.1 Schedule of Values:**

12.1.1. The Schedule of Values shall be approved by the **Professional** and divide the Work into pay items for significant Sections and areas, facilities, or structures, with subtotals for first tier Subcontractors. If required in Division 1, the Schedule of Values shall be supported by a more detailed breakdown allocating the pay items to the Progress Schedule Activities.

12.1.2. The Schedule of Values shall tabulate labor costs, Subcontract costs and material and equipment costs. Labor costs

shall include appropriate sums for construction equipment costs, general conditions costs, administrative costs (paragraph 11.10) and profit, unless separate pay items are itemized for those costs.

*12.1.3. The Schedule of Values shall include the following close-out pay items: (a) two percent (2%) of the Contract Price for Fire Marshall approval, certificate of occupancy and other code approvals, as specified in the Contract Documents, (b) two percent (2%) of the Contract Price for manufacturer warranties, finalized operating and maintenance documentation, **Owner** training documentation, and test and balance reports, and (c) two percent (2%) of the Contract Price to cover finalized Record Documents.

**12.2 Requests for Payment:**

12.2.1. Once each month, the **Contractor** shall submit to the **Professional** a Request for Payment on the **Owner's** form signed by the **Contractor** certifying Work completed and enclosing all supporting documentation. Each Request for Payment shall certify that all monies owed by the **Contractor** to Subcontractors and Suppliers for which payment previously has been sought has been paid from payments received and include a sworn statement. No Request for Payment shall include amounts for a Subcontractor or Supplier if the **Contractor** does not intend to use the payments requested, when received, to reduce the **Contractor's** outstanding obligations on the Work.

12.2.2. **The State will only disburse payments under this Contract through Electronic Funds Transfer (EFT)**. Contractor must register with the State at https://sigma.michigan.gov/PRDVSS1X1/Advantage4 to receive electronic fund transfer payments. If Contractor does not register, the State is not liable for failure to provide payment. Without prejudice to any other right or remedy it may have, the State reserves the right to set off at any time any amount then due and owing to it by Contractor against any amount payable by the State to Contractor under this Contract.

12.2.3. Payment to the **Contractor**, if approved by the **Owner**, will be made within thirty (30) Calendar Days after the **Owner** receives and approves a certified Request for Payment from the **Professional**. Payment for authorized reimbursable expenses shall be made monthly in the amount incurred before the cut-off date, provided each payment request expense is properly documented in spreadsheet form detailing the information about the request. The **Contractor** will provide a certification in writing that the payment request submittal is true and accurate.

12.2.4. If payment is requested based on materials and equipment stored at the site or at another location agreed to in writing, the Request for Payment also shall be accompanied by (a) consent of surety, (b) a bill of sale, invoice or other documentation warranting that the **Owner** has received the materials and equipment free and clear of all liens, and (c) evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect them and the **Owner's** interests. If the documentation provided by the **Contractor** to comply with the intent of this paragraph is unsatisfactory, the **Owner** shall be entitled to withhold an appropriate amount from that Request for Payment until the **Contractor** provides documentation acceptable to the **Owner.**

12.2.5. The **Contractor** warrants and guarantees that title to all Work, materials and equipment covered by any Request for Payment, whether incorporated in the Work or not, will pass to the **Owner** free and clear of all liens no later than at the time of payment by the **Owner** to the **Contractor**.

**12.3 Review of Request for Payment; Intent of Review:**

12.3.1. Within ten (10) Calendar Days after receipt of a Request for Payment, the **Professional** shall certify to the **Owner** the amount the **Professional** determines to be due or shall return the Request for Payment to the **Contractor** indicating the reasons for withholding certification. Certification shall be based on the **Professional's** review of the Request for Payment and enclosed documentation, On-Site Inspections, and on-site Project representation, if any has been provided. If a Request for Payment is returned to the **Contractor**, the **Contractor** shall make the necessary corrections and resubmit that Request for Payment.

12.3.2. The **Professional's** certification of any Request for Payment constitutes a representation to the **Owner** that the Work has progressed to the point indicated; that to the best of the **Professional's** knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents; and that the **Contractor** is entitled to payment in the amount certified. Any such representation by the **Professional**, however, shall be subject to an evaluation of the Work as a functioning whole before and upon Substantial Completion; to the results of any subsequent tests called for in the Contract Documents; to a final determination of quantities and classifications of Unit Price Work (if any is specified) and to any other qualifications stated in the certification.

12.3.3. In the case of final payment, the **Professional's** certification of final payment and recommendation that the Work is acceptable shall be a further representation that conditions governing final payment to the **Contractor** have been met.

**12.4 Refusal to Make or to Recommend Payment:**

12.4.1. The **Owner** may withhold from any payment an amount based on the **Professional's** refusal to recommend payment or the **Owner's** estimate of the fair value of items entitling the **Owner** to a withholding. Such may include, but not be limited to liquidated damages, claims made against the **Owner** arising out of or related to the Work, payment claims, or failure by the **Contractor** to reimburse the **Owner** any costs the **Owner** is entitled to recover. The **Owner** will give the **Contractor** reasonably prompt written notice supporting such action.

12.4.2. The **Professional** may refuse to recommend all or any part of any payment, or because of subsequently discovered evidence, inspections or tests or the value of the Punch List, nullify all or any portion of any payment previously recommended, as the **Professional** may consider necessary to protect the **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 Order, (c) it has been necessary that the **Owner** correct Defective Work or complete Work, (d) reasonable evidence exists that all or a part of the Work will not be completed within the corresponding Contract Time, (e) of the **Contractor's** failure to comply with all material requirements of the Contract, including, but not limited to the failure to submit Progress Schedule Submittals or Record Documents when due, (f) stored materials for which payment has been made or is sought has been determined by the **Professional** to be damaged or missing, (g) amounts are requested for a Supplier which is not the Supplier named in the **Contractor's** completed Section 00440 Schedule of Materials and Equipment or a Supplier approved by the **Professional** through an

"or equal" or substitution procedure, or (h) the **Professional** reasonably believes or knows of the occurrence of an event justifying termination for cause.

12.5.2. Upon written notice from the **Contractor** that the **Contractor** considers the entire Work, or a part of the Work for which final payment is specified in the Contract Documents, to be complete and ready for final payment, the **Professional** will make a final completion inspection with the **Owner** and **Contractor** and notify the **Contractor** in writing of all instances of incomplete or Defective Work revealed by the final inspection. The **Contractor** shall immediately undertake all necessary measure to complete Work in the final completion inspection.

12.5.3. The **Contractor** may request final payment after completing the incomplete or Defective Work to the satisfaction of the **Professional** and delivering final operating and maintenance documentation (with revisions made after Substantial Completion), warranties, inspection certificates, Record Documents (with revisions made after Substantial Completion), release of payment claim forms and all other required documents.

12.5.4. The **Contractor's** request for final payment shall enclose evidence of completed operations insurance and affidavit certifying that the insurance coverage will not be canceled, materially changed or renewal refused except as provided in paragraph 7.4.3, and an affidavit certifying that the surety agrees that final payment shall not relieve the surety of any of its obligations under the Performance Bond and Payment Bond. The **Contractor's** request for final payment shall further include (a) a **Contractor's** "Guarantee and Statement" (available from the **Owner**, form DTMB-0437) containing a statement of guaranteed indebtedness acceptable to the **Owner** in the full amount of the Contract Price, or a release of payment claims in the form of a release of liens, or a Bond or other security acceptable to the **Owner** to indemnify the **Owner** against any payment claim, and (b) a list of all pending insurance claims arising out of or resulting from the Work being handled by the **Contractor** and/or its insurer.

**12.6 Final Payment and Acceptance:**

12.6.1. If the **Professional** is satisfied that the Work, or a part of the Work for which separate final payment is specified in the Contract Documents, has been completed and the **Contractor's** other obligations under the Contract Documents have been fulfilled, the **Professional** will, within thirty (30) Calendar Days after receipt of the final payment request, furnish to the **Owner** and **Contractor** the **Professional's** certification of final payment and acceptance. If the **Professional** is not satisfied, the **Professional** will return that request to the **Contractor**, indicating in writing the reasons for not certifying final payment, in which case the **Contractor** shall make the necessary corrections and request that final payment again be considered.

12.6.2. If the **Owner** concurs with the **Professional's** certification of final payment, the **Owner** will, within thirty (30) Calendar Days after receipt by the **Owner** of the **Professional's** certified recommendation of final acceptance, pay the balance of the Contract Price, subject to those provisions governing final payment specified in the Contract Documents. If the **Owner** does not concur with the **Professional's** determination, the **Owner** will return the request for final payment to the **Contractor** indicating in writing the

**12.5 Request for Final Payment:**

12.5.1. The **Contractor** shall complete the Substantial Completion Punch List within the Contract Time and date fixed by the **Professional**. The **Contractor** shall assemble all requisite documentation before requesting final inspection.

reasons for refusing final payment and acceptance. In that case, the **Contractor** shall make the necessary corrections and shall request that final payment be again considered by the **Owner**. The **Owner's** written determination will be binding upon the **Contractor**, unless the **Contractor** delivers a notice of a claim and a claim Submittal within the deadlines set forth in Article 15.

12.6.3. If final completion of the Work is significantly delayed through no fault of the **Contractor**, the **Owner** may, upon receipt of the **Contractor's** final Request for Payment, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. Payment of the balance due shall be made under the provisions for final payment but shall not constitute a waiver of claims.

12.6.4. The **Owner** shall pay with reasonable promptness any amounts deducted from the final payment, upon resolution of the claims justifying withholding of such monies.

**12.7 Contractor's Continuing Obligation:**

12.7.1. The following does not constitute acceptance of the Work in the event the Work or any Work is not in accordance with the Contract Documents, and therefore does not release the **Contractor** from its obligation to perform and furnish the Work in accordance with the Contract Documents: (a) a certification by the **Professional** of any Request for Payment or final payment; (b) the issuance of a Substantial Completion certificate; (c) any payment by the **Owner** to the **Contractor**; (d) any Partial Use; (e) any act of acceptance by the **Owner** or any failure to do so; (f) any review and approval of a Shop Drawing, sample, test procedure or other Submittal; (g) any review of a Progress Schedule; (h) any On-Site Inspection; (i) any inspection, test or approval; (j) any issuance of a notice of acceptability by the **Professional**; or (k) any correction of Defective Work or any completion of Work by the **Owner**.

**12.8 Waiver of Claims:**

12.8.1. The making and acceptance of final payment do not constitute a waiver by the **Owner** of any rights as to the **Contractor's** continuing obligations under the Contract Documents, nor will it constitute a waiver of any claims by the **Owner** against the **Contractor** still unsettled, or arising from unsettled payment claims, Defective Work appearing after final inspection or failure by the **Contractor** to comply with the Contract Documents or the terms of any special warranties provided by the Contract Documents or by Law.

12.8.2. The making and acceptance of final payment will constitute a waiver of all claims by the **Contractor** against the **Owner**, other than those claims previously made in writing, on a timely basis in accordance with Article 15, and still unsettled.

## ARTICLE 13 OTHER WORK

### 13.1 Related Work at Site:

13.1.1. During the period allowed for the furnishing and performance and completion of the Work, the **Owner** may undertake other work at the site with its own forces, or have other work performed at the site by other parties (including, but not limited to contractors or Public Utilities). If the Contract Documents do not note the performance of any such other work, written notice will be given to the **Contractor** before starting that work.

13.1.2. Whenever work to be performed by the **Contractor** interfaces with other work, the **Contractor** shall coordinate that work with the interfacing work. Paragraphs 13.2 and 13.3 outline representative duties and responsibilities assumed by the **Contractor** under this requirement. Such duties and responsibilities are for the benefit of the parties on the other work to the extent there are comparable provisions for the benefit of the **Contractor** in the contracts between those parties and the **Owner**.

### 13.2 Coordination Requirements:

13.2.1. If other work is ongoing concurrently with the Work, the **Contractor** shall afford the responsible party proper and safe access to the site. The **Contractor** shall afford the other party a reasonable opportunity for the handling, unloading and storage of their materials and equipment and for the execution of their work.

13.2.2. If any part of the Work, for proper execution or results, interfaces on the work of the **Owner** or another party, the **Contractor** shall inspect and promptly report to the **Professional** in writing conditions in that work that render it unavailable or unsuitable for proper execution and results. The **Contractor's** failure to do so will constitute an acceptance of such other work as fit and proper for integration with the Work except for latent or non-apparent defects and deficiencies in the other work.

13.2.3. The **Contractor** shall do all cutting, fitting, patching, and interfacing of the Work that may be required to make any part of the Work come together properly and integrate with other work. The **Contractor** shall not cut, excavate, or otherwise alter any other work without prior written consent of the party responsible for such other work. The **Contractor** shall supply, install and/or cause items to be built into interfacing Work, verify dimensions of interfacing Work, and notify the **Professional** of interfacing work that is unsatisfactory for, or prevents satisfactory installation of, any Work. Installation of any Work shall constitute acceptance by the **Contractor** of all previously placed interfacing work.

13.2.4. The **Contractor** shall be responsible for cooperating with the **Professional** fully in the coordination of the **Contractor** Submittals with interfacing submittals of other parties whose work in any way integrates with the Work or vice versa. Any such coordinated Submittal of the **Contractor** shall identify, by specific written notation, Work which integrates with the other work and of which the **Contractor** knows or has reason to know.

13.2.5. If the **Owner** contracts for other work, the **Owner** will have authority and responsibility for coordinating the operations of the **Contractor** and the other work. The **Owner** may delegate the specific authority and responsibility for coordinating the operations of the **Contractor** and of those parties performing the other work to another organization either by provision in Section 00800 Supplementary Conditions or at the pre-construction conference.

### 13.3 Claims Between the Contractor and Other Parties:

13.3.1. If the **Contractor** causes damage to the work or property of others, or if a claim arising out of the **Contractor's** execution of Work is made by another party against the **Contractor**, **Owner** or **Professional**, the **Contractor** shall promptly attempt to settle with that party by agreement or otherwise resolve the claim. The **Contractor** shall in any event, defend, indemnify, and hold harmless the **Owner** and **Professional** from and against all claims, as provided in paragraph 1.4, and/or judgments arising out of or resulting from damage by the **Contractor** to the work or property of others.

13.3.2. If another party causes damage to the Work or property of the **Contractor**, or if the performance of other work results in any claim by the **Contractor**, the **Contractor** shall promptly resolve the issue by agreement or otherwise resolve the claim. The **Contractor** shall not begin any action against the **Owner** (or its departments, agencies, boards, commissions, officers, and employees) or **Professional** (or their consultants, agents or any of their directors, officers, shareholders, agents, or employees), or permit any action against them to be maintained in the **Contractor's** name or for the **Contractor's** benefit before any court or tribunal, which action seeks to impose liability or recover damages from the **Owner** or **Professional** for such claim.

13.3.3. If the **Contractor** becomes involved in settling or otherwise resolving claims and disputes with other parties performing other work from events covered under paragraphs 13.3.1 or 13.3.2, or because of any other similar controversy, including damage to the Work or other work, or a dispute about responsibility for clean-up or any other issue, neither the **Owner** or **Professional** nor any of their respective consultants, agents, directors, shareholders, officers or employees will be involved in any way in such action (unless subpoenaed or ordered by a court). If the **Owner** incurs costs or damages of the types barred by the provisions paragraphs 13.2.1 and 13.2.2, the **Contractor** shall reimburse those costs and damages to the **Owner**.

13.3.4. Except as excluded in paragraph 13.3.5, if any party performing other work causes Delay upon the Work and if, upon a request from the **Contractor**, the **Owner** determines that any such Delay justifies an increase in Contract Price and/or Contract Time, the **Owner** shall amend the Contract Documents to provide the necessary adjustment in Contract Price or Contract Time, or both.

13.3.5. If a party performing other work is granted an extension in a contract time only (on account of Delay not reasonably anticipatable under the circumstances nor caused, in whole or in part, by any act or omission of the other party, the **Owner**, **Professional** or the **Owner's** representative on that other work), and if, upon a request from the **Contractor**, the **Owner** determines that the time extension granted to the other work requires a change in a coterminous Contract Time in the Contract Documents, the **Owner** shall amend the Contract Documents to provide for the necessary change in Contract Time only.

## ARTICLE 14 TERMINATION

### 14.1 Notice Requiring Assurance of Due Performance:

14.1.1. The **Owner** may request the **Contractor** (with copy to the surety) to provide written assurance of due performance if, at any time, any of the following non-conformances occur, any of which, if not corrected, may justify defaulting the **Contractor**:

14.1.1.1. The **Contractor** fails to complete the Work, or a specified part of the Work, within the corresponding Contract Time; fails or refuses to supply sufficient management, supervision, workers, materials, or equipment; or otherwise fails to prosecute the Work, or any specified part of the Work, with the diligence required to comply with the Contract Time(s).

*14.1.1.2. The **Contractor** persistently disregards the authority of the **Professional** or violates or disregards a provision of the that the **Contractor** has the financial resources necessary to complete the Work within the Contract Time.

14.1.2. Within seven (7) Calendar Days after the **Contractor** receives a notice requiring assurance of due performance, the **Contractor** shall meet with the **Owner** and present the **Contractor's** plan to correct the non-performance with supporting documentation. If the **Owner** determines that the **Contractor's** plan provides adequate assurance of due performance, that determination shall not waive the **Owner's** right to subsequently default the **Contractor** or affect any rights or remedies of the **Owner** against the **Contractor** and/or surety then existing or that may accrue in the future.

**14.2 Contractor Default and Termination for Cause:**

14.2.1. The **Owner**, after giving the **Contractor** and surety seven (7) Calendar Days' written notice of intent to default, may declare the **Contractor** in default and terminate the services of the **Contractor** for cause upon the occurrence of one or more of the following events:

14.2.1.1. At or after the meeting referred to in paragraph 14.1.2, the **Owner** determines that there is sufficient cause, giving the issues raised, to default the **Contractor.**

*14.2.1.2. The **Contractor** fails to comply with the Michigan Residency requirements (1984 PA 431, as amended, MCL 18.1241a); or is found to be in violation of Section 4 of 1980 PA 278 concerning unfair labor practices, or any nondiscrimination requirements imposed by Law.

14.2.1.3. The **Contractor** violates or breaches any material provision of the Contract Documents which provides contractually for the for-cause termination or rescission of the Contract or of the **Contractor's** right to complete the Work.

14.2.1.4. A trustee, receiver, custodian, or agent of the **Contractor** is appointed under contract, as opposed to under bankruptcy Law, whose appointment or authority to take over the **Contractor's** property is for the purpose of enforcing a lien against such property or for the general administration of such property for the benefit of the **Contractor's** creditors; or

14.2.1.5. It is determined that gratuities, including, but not limited to entertainment, gifts or donations were given by or on behalf of the **Contractor** to an official, agent, servant, or employee of the **Owner** or **Professional** to secure the Contract or favorable treatment with respect to the awarding or amending or the making of any determination relative to the execution of the Work.

14.2.2. Unless otherwise agreed between the **Owner** and **Contractor,** at the expiration of the seven (7) Day (intent to default) period, the **Contractor** shall immediately stop all Work and proceed in accordance with the **Owner's** instructions. Following receipt, and expiration, of a second seven (7) Day written notice period intended Contract Documents or the Laws of any Political Subdivision with jurisdiction; or

14.1.1.3. The **Contractor** admits in writing, or the **Owner** otherwise establishes, the **Contractor's** inability or refusal to pay the **Contractor's** debts generally as they become due; or in response to the **Owner's** demand, fails to provide adequate, written assurance

to allow the surety to complete an investigation of the default, the surety shall immediately:

14.2.2.1. If approved by the **Owner,** arrange for the **Contractor** to continue with performance and prosecution of the Work to completion; or

14.2.2.2. Undertake to perform and complete the Work, in accordance with the Contract Documents, in place of the **Contractor**, either through the surety's agents or by executing Sub agreements with qualified contractors (excluding the **Contractor** and any of the **Contractor's** affiliates), or both; and

14.2.2.3. If agreed to by the **Owner**, waive the surety's rights set forth elsewhere in this Article, and with reasonable promptness under the circumstances, after investigating in good faith and with due care and diligence, determine the amount for which it may be liable to the **Owner**, and present that determination to the **Owner**. If the **Owner** rejects that amount, the surety shall negotiate a sum acceptable to the **Owner** and promptly pay that amount to the **Owner** in full and with interest from the date the termination of the **Contractor's** services became effective. If the **Owner** rejects the sum determined by the surety, or if the surety fails to negotiate an agreement with the **Owner** on the amount of the surety's liability, the **Owner** shall have full power and authority to default the surety.

14.2.3. If the **Owner** has terminated the **Contractor**, and the surety elects to act under paragraph 14.2.2.2, the **Owner** will determine in good faith the amount necessary to cover the total direct, indirect and consequential costs (including, but not limited to liquidated damages, costs of correcting Work, fees and charges of engineers, architects, attorneys and others and any other costs and damages for which the surety is liable under Section 00610 Performance Bond) that the **Owner** believes it will sustain from that default. The **Owner** will communicate its determination to the surety, and the **Owner** will deduct that amount in its entirety from Requests for Payment under the Contract Documents. Upon completion of the Work, if the unpaid balance of the Contract Price is not sufficient to reimburse the **Owner** for all actual direct, indirect, and consequential costs resulting from the default of the **Contractor**, the surety and **Contractor**, jointly and severally, are liable to the **Owner** for the difference, which they shall pay to the **Owner** promptly.

14.2.4. If the **Owner** has terminated the **Contractor**, and the surety elects to act under paragraph 14.2.2.2, the surety's contract with another contractor makes that contractor a Subcontractor under the Contract, in which case: (a) the provisions of Article 11 shall remain in full force and effect, (b) the methods and criteria to be used to compute the surety's (in lieu of the **Contractor's**) and that contractor's Cost of and Fee for any Work involved shall be limited to those provided in Article 11, and (c) all Work performed by any such contractor pursuant to a Sub agreement with the surety shall be governed by the flow-through requirement in paragraph 5.1.6, the waiver of rights of subrogation provision in paragraph 7.8 and any other requirements of the Contract Documents governing Sub agreements.

14.2.5. If the **Owner** has terminated the **Contractor**, any such termination will not affect any rights or remedies of the **Owner** against the **Contractor** or surety, or both, then existing or that may accrue after termination. All provisions of the Contract Documents that, by their nature, survive final acceptance of the Work shall remain in full force and effect after a termination for cause of the **Contractor** or default of the surety, or both.

**14.3 Surety Default:**

14.3.1. If upon receipt of a notice of termination for cause, the surety fails to proceed immediately and as provided in paragraph 14.2.2, the **Owner** shall declare the surety in default under Section 00610 Performance Bond in accordance with the terms and conditions of this paragraph.

14.3.1.1. No default of the surety under the Section 00610 Performance Bond shall be declared, however, until the expiration of fifteen (15) Calendar Days after receipt by the surety of an additional written notice from the **Owner** demanding that the surety perform its obligations under Section 00610 Performance Bond.

14.3.2. If the **Owner** declares the surety in default, the **Owner** shall have full power and authority to exclude the surety and **Contractor** from the site, assume any Sub agreements that the **Owner** so selects and take possession of the Work and of all the surety's and **Contractor's** tools, plant and office, and construction equipment at the site (without liability to the surety or **Contractor** for trespass, rent or conversion). The **Owner** will (a) proceed to the full extent that the surety and **Contractor** could have proceeded, (b) incorporate into the Work all materials and equipment stored at the site or elsewhere, and (c) prosecute the Work to completion as the **Owner** may deem expedient. When the **Owner** exercises any of the rights or remedies provided in this paragraph, the **Owner** shall not be required to obtain the lowest price for Work performed.

14.3.3. If the **Owner** has defaulted the surety, any such termination or default will not affect any rights or remedies of the **Owner** against the **Contractor** or surety, or both, then existing or that may accrue after termination. Any retention or payment of monies due the **Contractor** or surety by the **Owner** will not release the **Contractor** or surety from liability. All provisions of the Contract Documents that, by their nature, survive final acceptance of the Work shall remain in full force and effect after a termination for cause of the **Contractor** or default of the surety, or both.

**14.4 Termination for Convenience of the Owner:**

14.4.1. Upon fifteen (15) Calendar Days' written notice to the **Contractor** and surety, or sooner if reasonable under the circumstances, the **Owner** may, without cause and without prejudice to any other right or remedy it may have, elect to terminate any part of the Work, or the Agreement in whole or in part, as the **Owner** may deem appropriate for its convenience. Upon receipt of any such termination notice, the **Contractor** shall immediately proceed in accordance with any specific instructions, protect and maintain the Work, and make reasonable and diligent efforts to mitigate costs associated with the termination.

14.4.2. In any termination for convenience, the **Contractor** shall be paid for (a) Work completed, in accordance with the Contract Documents, before receipt of the notice of termination, and (b) reasonable termination settlement costs for commitments that had become firm before the termination. The **Contractor** shall not be paid any anticipated and unrealized general conditions costs, administrative expenses, and profit for uncompleted Work. If no agreement can be reached as to reasonable termination costs, the **Owner** will make a determination in writing which shall be final and binding on the **Contractor** unless the **Contractor** delivers notice of a claim and a claim Submittal in accordance with the procedures and within the deadlines set forth in Article 15.

14.2.6. The **Owner** may, in its sole discretion, permit the **Contractor** to continue to perform Work when the **Contractor** is in default or has been defaulted. Such decision by the **Owner** shall in no way operate as a waiver of any of the **Owner's** rights under the Contract Documents or Section 00610 Performance Bond, nor in the event of a subsequent default, entitle the **Contractor** or surety to continue to perform or prosecute the Work to completion.

14.4.3. Upon termination for convenience, the **Owner** shall have full power and authority to take possession of the Work, assume any Sub agreements with Subcontractors and Suppliers that the **Owner** selects, and prosecute the Work to completion by contract or as the **Owner** may deem expedient.

14.4.4. If after notice of termination of the services of the **Contractor**, it is determined the **Contractor** was not in default, the termination shall be deemed to have been for the convenience of the **Owner**. In such event the **Contractor** may recover from the **Owner** payment in accordance with paragraph 14.4.2.

**14.5 The Contractor May Suspend Work:**

14.5.1. In addition to being entitled to earning interest on unpaid Requests for Payment, the **Contractor** may, upon fifteen (15) Calendar Days written notice to the **Owner**, suspend the Work for the **Owner's** convenience if, through no act or fault of the **Contractor**, the **Professional** fails, for thirty (30) Calendar Days, to initiate processing of any Request for Payment or the **Owner** fails, for ninety (90) Calendar Days, to pay the **Contractor** any Request for Payment finally certified by the **Professional** to be due.

14.5.2. Except as specifically provided in paragraph 14.5.1, this provision shall not relieve the **Contractor** of the **Contractor's** obligations to prosecute the Work in accordance with the Progress Schedule and without Delay during any disputes and disagreements with the **Owner**.

## ARTICLE 15 DISPUTES

**15.1 Claims Under This Article:**

15.1.1. All claims, counterclaims, disputes, and other matters in question between the **Owner** and **Contractor** arising out of or relating to the Contract Documents or the breach thereof, shall be submitted in writing to the **Professional** and otherwise processed and resolved as provided in this Article.

15.1.2. A claim means a written demand or assertion by the **Owner** or **Contractor**, which is properly certified, seeking an adjustment in Contract Price and/or payment of moneys due, an extension or shortening in Contract Time, the adjustment or interpretation of Contract terms, or other relief arising under or relating to the Contract, which becomes a claim or dispute after a written determination by the **Professional** or **Owner** under the appropriate provision of the Contract Documents.

15.1.3. Unless otherwise agreed between the parties, any claim that can be resolved under a provision of the Contract Documents

providing for or excluding the relief sought by the claimant shall be resolved in accordance with that provision.

15.1.4. Notice of Claim - Except for **Owner** claims for liquidated damages, no claim shall be valid unless it is based upon written notice delivered by the claimant to the other party promptly, but in no event later than thirty (30) Calendar Days after the **Professional's** or **Owner's** determination giving rise to the claim. The notice shall

*15.1.5. A claim by the **Contractor** shall be submitted to the **Professional** and **Owner** for a recommendation or decision from the **Professional** and, if necessary, an **Owner** determination. A claim by the **Owner** shall be submitted to the **Contractor** and the **Professional** for a written recommendation or decision by the **Professional**. The **Owner** reserves the right to audit, using the provisions in paragraph 11.14, any **Contractor** claim (or claim package) that the **Contractor** values at more than $50,000.00.

15.1.6. Pending final resolution of any claim under this Article, the **Contractor** shall proceed diligently with the Work and comply with any decision of the **Owner** and/or **Professional**

**15.2 Requirement for Certification of Contractor Claims:**

15.2.1. For all **Contractor** claims seeking an increase in Contract Price or Contract Time, the **Contractor** shall submit an affidavit, certifying that the amount claimed accurately reflects any Delay and all costs that the **Contractor** is entitled from the occurrence of the claimed event and that supporting cost and pricing data are current, accurate, complete and represent the **Contractor's** best knowledge and belief. The affidavit shall be executed by an officer or partner of the **Contractor** with proper authority or his/her designee.

**15.3 Recommendations or Decisions from the Professional:**

*15.3.1. For **Contractor** claims under $100,000.00, if requested in writing by the **Contractor**, the **Professional** will render a recommendation or decision within thirty (30) Calendar Days after the request and the **Owner** will issue, if necessary, a determination within thirty (30) Calendar Days after the **Professional's** recommendation or decision. For **Contractor** claims exceeding $100,000.00, the **Professional** will issue its recommendation or decision and the **Owner**, if necessary, will issue its determination, within sixty (60) Calendar Days after completing an audit of the claim, or after deciding not to conduct such an audit or, in the alternative, will notify the **Contractor** of the date when the determination will be made. In the latter case, a final determination will be concluded within sixty (60) Calendar Days from the date of such notification.

*15.3.2. For **Owner** claims under $100,000.00, the **Professional** will render a recommendation or decision within thirty (30) Calendar Days of the request. For **Owner** claims over $100,000.00, the **Professional**, within sixty (60) Calendar Days, will render a recommendation or decision or notify the **Owner** and **Contractor** when such will be rendered.

*15.3.3. To the extent any **Professional's** decision is to deny a **Contractor** claim or to agree with an **Owner** claim, that decision shall be final and binding on the **Contractor**, without any determination by the **Owner**, unless the **Contractor** files a request for a presentation with the **Director-DCD** within thirty (30) Calendar Days as required by paragraph 15.4.1. Unless a claim is made in accordance with these requirements, it shall be waived.

include a supporting statement stating the nature of the dispute, the amount involved, if any, and the remedy sought. The claim submittal with all supporting data shall be delivered within sixty (60) Calendar Days after the determination giving rise to the claim (unless the **Professional** allows an extension). The responsibility to substantiate claims shall rest with the claimant.

*15.3.4. To the extent that any recommendation from the **Professional** is partly or wholly adverse to a claim from the **Owner**, that determination shall be final and binding on both the **Owner** and **Contractor** unless either party files a request for a presentation with the **Director-DCD** as required in paragraph 15.4.1.

*15.3.5. To the extent the **Professional** recommends payment of any **Contractor** claim which increases the Contract Price, that recommendation shall be subject to a determination from the **Owner** in a written opinion. In the event any such determination from the **Owner** is partly or wholly adverse to the preceding recommendation from the **Professional**, that determination shall be final and binding on the **Contractor** unless the **Contractor** files suit in the Michigan Court of Claims within thirty (30) Calendar Days after receipt of such determination. Unless a claim is made in accordance with these requirements, it shall be waived.

**15.4 Determinations by the Director-DCD:**

*15.4.1. If either the **Contractor** or **Owner** is not satisfied with any decision of the **Professional** rendered pursuant to paragraph 15.3.3 or 15.3.4, that party shall, within thirty (30) Calendar Days of receiving that decision, file a written appeal with the **Director-DCD**. If a **Contractor** or **Owner** appeal is timely filed, the claimant shall be entitled to present its claim, unless waived, to the **Director-DCD**, or his/her designee, provided that a claim narrative with complete supporting documentation is delivered to the **Director-DCD**, or his/her designee, within thirty (30) Calendar Days of that party's written notice of appeal.

*15.4.2. Within thirty (30) Calendar Days after receipt of any such claim narrative, the **Director-DCD**, or his/her designee, shall schedule the time to start the presentations taking into account the dispute's complexity and the urgency of its resolution. Subject to any recognized privilege, discovery shall be available to either party as provided by the **Director-DCD**, and his/her designee, and shall be concluded thirty (30) Calendar Days before the start of the presentations.

*15.4.3. During the presentations, the **Director-DCD**, or his/her designee, shall hear presentations and receive evidence on the matters in dispute, as supported by the statement of the dispute. The **Director-DCD**, or his/her designee, shall have discretion concerning the allowability of evidence submitted, and shall not be bound to any rules of evidence other than those he/she promulgates.

*15.4.4. If the right to a presentation is waived or if a presentation is conducted and the dispute remains unresolved, the **Director-DCD**, or his/her designee, at his/her sole option, shall specify in which forum the dispute shall thereafter be conducted by issuing a written determination to the **Contractor** that the dispute if the **Contractor** so elects, be submitted in writing to:

*15.4.4.1. The Court of Claims maintained by the State of Michigan for the purpose of adjudicating claims against the State or other appropriate court, or

*15.4.4.2. Arbitration in accordance with the construction industry rules of arbitration of the American Arbitration Association, subject to the provisions of paragraphs 15.5.1 and 15.5.2, unless the parties mutually agree otherwise.

*15.4.5. The **Director-DCD's**, or his/her designee's, determination on the forum in which the dispute shall be conducted is final and binding upon the **Owner** and **Contractor**. The **Director-DCD's**, or his/her designee's determination on the dispute shall be final and the Michigan Court of Claims or requests arbitration, and the final determination of either forum does not increase the **Contractor's** recovery by thirty (30%) percent or more above that awarded by the **Director-DCD**, or his/her designee, or voluntarily withdraws the action, the **Contractor** shall pay all resulting expenses of the **Owner** (including, but not limited to reasonable charges of attorneys, engineers, others and court or arbitration costs)

**15.5 Supplements to AAA Arbitration:**

*15.5.1. No arbitration, arising out of, or relating to the Contract Documents shall include, by consolidation, joinder or in any other manner, any additional party not a party to this Contract, except by written consent containing a specific reference to the Agreement and signed by all the parties involved. Consent shall be deemed given by any party who has executed an agreement directly with the **Owner** affected by the Project and containing provisions comparable to those in this Article 15. Any consent to arbitration involving any additional party or parties shall not constitute consent to arbitration of any dispute not permitted in this Article. The agreement to arbitrate with any additional party or parties duly consented to by the parties to this Contract shall be specifically enforceable under the prevailing arbitration Law.

15.5.2. Subject to any recognized privilege, discovery shall be available to each party to the arbitration as it would be available under the general court rules of the Michigan Court of Claims which shall be enforced by the American Arbitration Association. All discovery and amendments to the prehearing summary shall conclude thirty (30) Calendar Days before the arbitration date. Failure to provide the foregoing discovery shall render any claim supported by witnesses or documents not so disclosed excludable by the arbitration panel in its discretion.

binding on the **Contractor** unless the **Contractor** files a lawful action in the forum so chosen (Michigan Court of Claims or arbitration) within thirty (30) Calendar Days after receiving the **Director-DCD's**, or his/her designee's, determination.

*15.4.6. If, after such determination from the **Director-DCD**, or his/her designee, the **Contractor** properly submits the dispute to

**15.6 Interest on a Judgment; Payment of Judgment:**

*15.6.1. If, subsequent to a determination by the **Director-DCD**, or his/her designee, the **Owner** or **Contractor** files a Michigan Claims Court or AAA arbitration action, and the party filing for such action increases its recovery by thirty (30%) percent or more above that awarded by the **Director-DCD**, or his/her designee, that party shall be entitled to interest calculated in accordance with MCL 600.6013, as amended, whether the action is filed with the Michigan Court of Claims or the American Arbitration Association.

*15.6.2. After settlement or final adjudication of any claim under this Article if, upon demand, payment by the **Contractor** is not made to the **Owner**, the **Owner** may offset the appropriate amounts against (a) payments due to the **Contractor** under any other contract between the **Owner** and the **Contractor**, or (b) any amounts for which the **Owner** may be obligated to the **Contractor** in any capacity.

**15.7 Venue; Flow-Through Provision:**

15.7.1. The **Contractor** agrees to waive jurisdiction and venue, to consent and submit to the jurisdiction of, and not commence any action in other than, a competent State court in Ingham County, Michigan, unless original jurisdiction is vested in the Michigan Court of Appeals, the Michigan Court of Claims, or the Michigan Supreme Court, regardless of residence or domicile, for any action or suit at law or in equity arising out of or under the Contract Documents. The **Contractor** further agrees that it will have each of its Suppliers and Subcontractors provide similar waivers as those required in this paragraph.

15.7.2. The **Contractor** shall insert the provisions of this Article in all Sub agreements, altering those paragraphs only to identify properly the contracting parties.

**END OF SECTION 00700**

## SECTION 00800 SUPPLEMENTARY CONDITIONS

**PROFESSIONAL** – NTH Consultants, Ltd.

WORK – MDOT Garage Storm Sewer Reconstruction

AGENCY No. 591 FUNDING CODE. ___ MDOT Funded _____ FILE No. 22274.MNB

The provisions of this Section 00800 Supplementary Conditions amend or supplement Section 00700 General Conditions and those other provisions of the Contract Documents, as indicated below. All other provisions of the Contract Documents that are not so amended or supplemented remain in full force and effect.

## ARTICLE 4 CONTROL OF THE WORK – GENERAL PROVISIONS

ADD Section 4.4.14 as follows:

4.4.14 The Contractor shall note and comply with APPENDIX I SPECIAL WORKING CONDITIONS and APPENDIX II SPECIAL PROJECT PROCEDURES as part of and in conjunction with all other contract requirements. APPENDIX I & II immediately follow and are attached hereto SECTION 00800.

## ARTICLE 7 LEGAL AND CONTRACTUAL REQUIREMENTS; INSURANCE

ADD Section 7.14.3 for projects with Federal Funding:

### 7.14.3 FEDERALLY FUNDED PROJECT PREVAILING WAGE REQUIREMENTS

If a project is funded in whole or in part by federal dollars, the Contractor and all Subcontractors must comply with the most recent version of Federal Provisions Addendum and all Laws pertaining to occupational classifications and prevailing wage requirements as follows:

1. FEDERAL PROVISIONS ADDENDUM
   a. The most current version of Federal Provisions Addendum shall apply to this contract and is included in Appendix III.

2. DAVIS BACON ACT WAGE AND CLASSIFICATIONS
   a. If applicable, the Contractor (and its Subcontractors) for prime construction contracts in excess of $2,000 must comply with the Davis-Bacon Act (40 USC 3141-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction").

   b. The Contractor (and its Subcontractors) shall pay all mechanics and laborers employed directly on the site of the work, unconditionally and at least once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the advertised specifications, regardless of any contractual relationship which may be alleged to exist between the Contractor or subcontractor and the laborers and mechanics.

   c. The Contractor will post the scale of wages to be paid in a prominent and easily accessible place at the site of the work.

   d. There may be withheld from the Contractor so much of accrued payments as the contracting officer considers necessary to pay to laborers and mechanics employed by the Contractor or any Subcontractor on the work the difference between the rates of wages required by the Contract to be paid laborers and mechanics on the work and the rates of wages received by the laborers and mechanics and not refunded to the Contractor or Subcontractors or their agents.

   e. The Contractor shall maintain payrolls and basic records relating thereto for a period of three (3) years after the project; contractor shall submit Certified Payroll Reports using US Department of Labor Wage and Hour Division Form WH-347 for each weekly payroll to support and document compliance with the Davis Bacon Wage rates.

   f. Davis Bacon wage and classification schedules applicable for this project/location are included in Appendix III.

**ARTICLE 15 DISPUTES**

REPLACE Section 15.1.2 with the following:

15.1.2. A claim means a written demand or assertion by the Owner or Contractor, which is properly certified, seeking an adjustment in Contract Price and/or payment of moneys due, an extension or shortening in Contract Time, the adjustment or interpretation of Contract terms, or other relief arising under or relating to the Contract. If a Bulletin or specific request for proposal has been issued by the Professional or Owner and quoted by the Contractor, it may become a claim or dispute with proper written notice per 15.1.2.1 should the Contractor is object to a written determination and/or rejection by the Professional or Owner under the appropriate provision of the Contract Documents.

ADD Section 15.1.2.1 – Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker (Professional/PSC). Claims by either party must be initiated within 21 days after the occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognized the condition giving rise to the claim. Provided such timely notice is delivered, a full and detailed breakdown of cost and time requested, with supporting documentation, if not provided with initial notice shall be delivered to Professional and Owner within 15 days of the notice, as noted in article 11.1.2, unless otherwise agreed in writing, by the Owner prior to expiration of such time.

ADD Section 15.1.2.2 – Pending final resolution of a Claim, except as otherwise agreed in writing or as provided under conditions of failure of timely progress payment or Article 14, the Contractor shall ensure the Work diligently proceeds with the performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Owner shall prepare Change Orders and PSC shall certify payment requests in accordance with the decisions of the Initial Decision Maker.

REPLACE Section 15.1.4 with the following:

15.1.4. Notice of Claim - Except for **Owner** claims for liquidated damages, no claim shall be valid unless it is based upon written notice delivered by the claimant to the other party and the Professional/PSC within 21 days as per 15.1.2 and 15.1.2.1. The notice shall include a supporting statement stating the nature of the dispute, the amount involved, if any, and the remedy sought. The claim submittal with all supporting data shall be delivered within thirty (30) Calendar Days after Notice (unless the **Professional** allows an extension). The responsibility to substantiate claims shall rest with the claimant.

**END OF SECTION 00800**

## SECTION 01310 PROGRESS SCHEDULE

### PART 1 - GENERAL

#### 1.01 SUMMARY

A. The **Contractor** will submit CPM Progress Schedules to the **Owner** depicting its approach to prosecution of the Work. This includes but is not limited to the **Contractor's** approach to recovering schedule and managing the effect of changes, substitutions, and Delays on Work sequencing.

B. The Progress Schedule will include the Rev. 0 Submittal (par. 3.02), Update Submittals (par. 3.03) and Revision Submittals (par. 3.04). Each Submittal will be assigned a unique number. For a resubmission, the initial number will be modified by the letter A, B, C, etc., as appropriate.

C. Through the Progress Schedule, the **Owner** will seek to stay current on progress, updated Activity and Milestone Dates, and the **Contractor's** approach to Work remaining.

D. References to the Critical Path Method (CPM) are to CPM construction industry standards that are consistent with the requirements of this Section 01310.

#### 1.02 RELATED SECTIONS

A. Section 00440 Schedule of Materials and Equipment; Section 00500 Agreement; Section 00700 General Conditions; and Section 00800 Supplementary Conditions.

#### 1.03 GLOSSARY OF TERMS

A. Capitalized terms not already defined in any Division 0 Specification have the following intent and meanings:

1. Milestone–A key point of progress, designating interim targets toward the Contract Times. They may pinpoint critical path foundations, key deliveries, building framing, start of MEP rough-in, building enclosure, partitions, interior finishes, conditioned space, commissioning stages, Substantial Completion, and other events of like import.
2. Official Schedule–The most recent Revision Submittal returned to the **Contractor** as Resubmittal Not Required. The Rev. 0 Official Schedule is the *As-Planned* Schedule.
3. Revision 0 Submittal–Progress Schedule submitted by the **Contractor** depicting the entire Work as awarded.
4. Update Submittal–A monthly Progress Schedule update reflecting progress and minor adjustments on the Activities, sequencing and restraints for Work remaining.

#### 1.04 QUALITY ASSURANCE

A. The **Contractor** will obtain a written interpretation from the **Professional,** if the **Contractor** believes the selection of Activities, logic ties or restraints requires an interpretation of the Contract Documents. With each submission, the **Contractor** will point out by specific, written notation, any Progress Schedule feature that may reflect variations from any requirements of the Contract Documents.

B. The **Contractor** is responsible to obtain information from each Subcontractor and Supplier when scoping their respective Activities, Values, logic ties and restraints

C. No review of any Progress Schedule by or on behalf of the **Owner** will relieve the **Contractor** from complying with the Contract Times and any required sequence of Work or from completing Work omitted from the Progress Schedule. No review will imply approval of any variation from or interpretation of the Contract Documents, unless approved by the **Professional** through a written interpretation or by means of a separate, written notation.

#### 1.05 ALLOWANCES

A. Work covered by Cash Allowances will be completed within the Contract Times. To the extent reasonable and consistent with the **Contractor's** plan, Work authorized by contingency allowances will be completed within the Contract Times. The Progress Schedule will incorporate the **Contractor's** best estimate of the Activities, logic and restraints required, using the information in the Contract Documents, or as indicated by the **Professional** in writing.

#### 1.06 "OR EQUALS" AND SUBSTITUTIONS

A. Activities in the Rev. 0 Progress Schedule will be based on materials and equipment required by the Contract Documents and will not reflect any "or equal" or substitute materials or equipment, even if the **Contractor** intends to pursue "or equal" and substitution proposals. This limitation also applies to any Means and Methods indicated in or required by the Contract Documents.

#### 1.07 MEASUREMENT AND PAYMENT

A. The Schedule of Values will include a Progress Schedule *pay item*. Fifteen percent (15%) of this *pay item* will be eligible for payment upon delivery of the *complete* Rev. 0 Submittal. The balance of this *pay item* will be eligible for payment, on a prorated basis, with each Request for Payment attaching an Update Submittal.

### PART 2 - WORK PRODUCTS

#### 2.01 PROGRESS SCHEDULE SUBMITTALS

A. Each Progress Schedule Submittal will consist of an electronic disk with the **Contractor's** files, a narrative and three (3) copies of the required reports and plots.

B. The CPM scheduling software will be Primavera Project Planner®, SureTrak® or Microsoft Project®.

#### 2.02 PRINTOUTS

A. Schedule Reports will include Activity (ID) code and description, duration, calendar, Early Dates, Late Dates and Total Float, all of which will comport with the requirements of paragraph 8.3.4 of Section 00700 General Conditions.

1. Late Finish Date for an Activity pinpointing a Contract Time will equal that Contract Time. Early Start Date for an Activity designating a Contract restraint will equal the proper Notice to Proceed date. Schedule Reports may or may not append CPM Plots (time-scaled Activity/logic).
2. For Precedence Diagram Method, separate Schedule Reports will tabulate, for each Activity, all preceding and succeeding logic types and lead times, whether CPM Plots displaying vertical logic ties are appended or not.

B. CPM Schedule Plots will be plotted on a suitable time scale and identify the Contract Times, Critical Paths, and sub-Critical Paths. Activities will be shown on the Early Dates with Total Floats noted by Late Date flags.

C. Line of Balance Plots will reflect industry practice for repetitive construction and will segregate the production lines for all trades within the hammock Activities.

**2.03 NARRATIVE REQUIREMENTS**

A. In general, a narrative will describe the **Contractor's** approach to prosecution of the Work, subject to the requirements of the Contract Documents. Further, each narrative will list the Critical Path Activities and compare Early and Late Dates with Contract Times and Milestone Dates. The basis for restraint dates will be explained.

B. For each Update Submittal, the narrative will compare current Dates to the respective Milestone Dates, describe changes in crewing and construction equipment and identify new Delays. For each Revision Submittal, the narrative also will itemize changes in Activities, logic ties and restraint dates made necessary by each change, Delay, schedule recovery, substitution and **Contractor**-initiated revision occurring since the previous Submittal.

**2.04 ACTIVITY REQUIREMENTS**

A. The Progress Schedule will detail Work sequencing only to the extent necessary to allow the **Owner** to correlate percent complete, compare actual dates with Milestones and Contract Times and the data in Requests for Payment.

B. Separate Activities will designate permits, construction, Submittal preparation/review (and resubmission and re-review, for same); MEP coordination drawings; deliveries; commissioning; and Punch List. Separate Activities will designate **Owner**-furnished items, interface with other work and the **Owner** and **Professional's** responsibilities.

B. Activities will be detailed only to the extent required to show the transition of trade Work. Activities will detail the progression through site/excavation, foundations, building framing, start/completion of interior partitions, MEP rough-in, building enclosure, interior finishes, conditioned space, and commissioning.

1. Submittal Activities will segregate long-lead items, any item requiring structural access and other procurements that, in the **Contractor's** judgment, may bear on the rate of progress. Separate MEP coordination drawing Activities will be used for each floor. Beyond these requirements, it is not necessary to burden the Progress Schedule with Activities for less significant Submittals and deliveries.
2. For multiunit Work (e.g., rough-in overhead MEP for each floor, etc.), detailed Activities will be shown for a typical (often, the first) unit). Other or follow-on units may be replicated, as appropriate, or modeled with a hammock Activity combining the sum total of the typical detailed Activities. Separate Activities, as may be suitable to the Divisions of Work involved, will be identified for single-unit Work. This requirement applies to such scope as Work in mechanical rooms, building framing, commissioning, etc.
3. Activities will not combine separate or non-concurrent items of Unit Price or lump sum Work, Work in separate structures and Work in distinct areas, locations or floors within an area or structure; or rough-in and finish Work.

C. Activity durations will equal the Business Days required to sufficiently complete the Work designated by the Activity (i.e., when finish-to-start successors may start, even if the Activity is not quite 100% complete). Installation Activities will last from twenty (20) to forty (40) Days.

D. Activities will be assigned consistent descriptions and identification codes. Sort codes will group Activities by building or structure, floor or area, Change Order and Change Authorization and other meaningful scheme

**PART 3 – EXECUTION**

**3.01 FLOAT TOLERANCES**

A. Any Progress Schedule with Early Dates after a Contract Time will yield negative Total and Contract Floats, whether shown/calculated or not. Any Revision Submittal with less than negative twenty (20) Days of Float will be returned as "Revise and Resubmit," unless a time extension is requested, or the **Owner** withholds liquidated damages or asserts intent to do so in the event schedule is not recovered.

B. Floats calculated from the definitions given in Section 00020 Glossary supersede any conflicting Float values calculated within any early completion Progress Schedule.

**3.02 REVISION 0 (Rev. 0) SUBMITTAL**

A. The complete Revision 0 Submittal will be due with the first Request for Payment. The Rev. 0 Submittal will show the Work as awarded, without Delays, "or equal" or substitutions, Change Orders or Change Authorizations.

1. The Rev. 0 narrative will detail the **Contractor's** management of the site (lay down, parking, etc.). Further, the Rev. o narrative will identify shifts, weekend Work, Activity calendars, Delays since award and all pending and anticipated "or equal" and substitution proposals.

E. Once endorsed by the **Owner** and returned as "Resubmittal Not Required," the Rev. 0 Progress Schedule (or Rev. 0A, etc.) will be the As-Planned Schedule and the basis for Update Submittals until the Rev. 1 Official Schedule is established. Once the As-Planned Schedule is established, the **Owner** will select Milestones and note Milestone Early and Late Dates. As the Official Schedule evolves, Milestone Dates will be revised accordingly.

F. If the **Owner** refuses to endorse the Rev. 0 Submittal (or Rev. 0A, for a resubmission) as "Resubmittal Not Required," the As-Planned Schedule will not be established. In that event, the **Contractor** will continue to submit Update and Revision Submittals reflecting progress and the **Contractor's** approach to remaining Work. The **Owner** will rely on the available Update and Revision Submittals, subject to whatever adjustments it determines appropriate.

**3.03 UPDATE SUBMITTALS**

A. Update Submittals with progress up to the closing date and updated Early and Late Dates for progress and remaining Activities will be due with each Request for Payment. As-built data will consist of actual start dates, percent complete, actual finish dates, changes, Delays, and other significant events occurring before the closing date.

**3.04 REVISION SUBMITTALS**

A. Progress Schedule Revisions will be submitted with the third Request for Payment and every two (2) months after that, or more often, if necessary due to schedule recovery or other Progress Schedule revisions. Revisions will revise the Update Submittal attached to the prior Request for Payment.

B. Progress Schedule revisions will detail all impacts on pre-existing Activity scope, logic ties and restraint dates and reflect the Contractor's current approach to Work remaining. Revisions may be required because of changes in the Work, substitutions, schedule recovery and Delays.

C. Once endorsed by the **Owner** and returned as "Resubmittal Not Required," a Revision Submittal becomes the Rev. 1, Rev. 2, etc. Official Schedule and the basis for subsequent Update Submittals until a more current Official Schedule is established. If the **Owner** refuses to endorse a Revision Submittal as "Resubmittal Not Required," the **Contractor** will continue to submit Update and Revision Submittals when and as required in this Section.

**3.05 RETROSPECTIVE DELAY ANALYSIS**

A. If the **Owner** refuses to endorse any Revision Submittal as “Resubmittal Not Required,” the **Contractor** and **Owner** will use the latest Official Schedule when evaluating the effect of Delays on Contract Time and/or Contract Price. The procedure will consist of progressively revising the latest Official Schedule at key Revision Submittal closing dates. For each Progress Schedule iteration, slippage between actual Milestone Dates and Rev. 0 Milestone Dates will be correlated to Delays occurring solely in that iteration. Revisions affecting Work after any iteration will be included only to the extent consented by the **Owner** at that time and/or if actually confirmed by as-built progress.

**END OF SECTION 01310**

# APPENDIX I

# SPECIAL WORKING CONDITIONS

DTMB State Facilities Administration
**Security Clearance Request**

## Contractor Instructions

The purpose of this document is to establish security and supervision requirements for contract personnel requiring access to Department of Technology, Management and Budget (DTMB) facilities.

*A DTMB Security Clearance form* must be completed before an individual is granted access to a facility. Access approval will be in effect for one year from date of DTMB Facility Services approval or until estimated project completion date (whichever occurs first).

Contract personnel agree to adhere to all DTMB rules and regulations which in DTMB facilities. Access will only be granted for normal business hours. (Monday-Friday, 8:00 a.m.-5:00 p.m. except State holidays). DTMB State Facilities Administration, Facility Services section must clear any exception in advance.

Contract personnel will be required to submit the following to DTMB Facility Services Manager or Regional Manager before entering a DTMB facility:

**Procedure for submitting form electronically (preferred and recommended)**

1. Complete a *DTMB Security Clearance form* (using Microsoft Excel) and include the following:

- Company name
- Company Contact name and phone number
- Complete name (**last name first**) and date of birth for all employees requiring access.

2. Email completed form to DTMB Facility Manager for an individual building or DTMB Regional Facility Manager for multiple building requests.

**Procedure for submitted in person or mail delivery**

1. Complete a *DTMB Security Clearance form* (using Microsoft Excel) and include the following:

- Company name

- Company Contact name and phone number

- Complete name (**last name first**) and date of birth for all employees requiring access.

2. Return completed form to DTMB Facility Manager for an individual building or DTMB Regional Facility Manager for multiple building requests.

**Note: This request must be received a minimum of 48 hours before entering a DTMB Facility.**

**DTMB Facility Access Criteria:**

1. Present pictured ID.
2. Name must appear on the clearance list.
3. Sign-in and wear a dated visitor's pass *(must be visibly displayed at all times).*
4. Return visitor pass to security desk at days end.

**Note: Individuals whose name does not appear on the clearance list are required to be signed in by a member of the DTMB Facility Services staff.**

Failure to comply with the above procedure will result in the individual(s) being delayed and may be cause for denying access to DTMB facilities.

# APPENDIX II

# SPECIAL PROJECT PROCEDURES

# SOIL EROSION AND SEDIMENTATION CONTROL PROJECT PROCEDURES FOR CONTRACTORS ON DTMB OWNED AND MANAGED PROPERTIES

1. Comply with Part 91, Soil Erosion and Sedimentation Control of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended.

2. Contact the DTMB, SFA, Design and Construction Division to discuss the implementation of soil erosion and sedimentation control (SESC) on the Project with DTMB SESC Officer. Phone **(517) 388-3045** or Email DTMB-SESC@michigan.gov.

3. Following the award of a contract, the Contractor will be required to prepare and issue for approval an SESC Implementation Plan, which indicates the Contractor's intended implementation of SESC on the project including a schedule and sequence. The Environmental Health and Safety Section, upon approval of the implementation plan, will issue to the Contractor an "Authorization to Proceed with Earth Change" document, which is to be posted at the job site. This document is issued in lieu of a permit from the county. Earthwork shall not begin prior to the issuance of this Authorization. Upon receipt of the Authorization document, the Contractor may begin earth change activities.

4. See below the "Checklist for Contractor's SESC Implementation Plan" for details of the required information necessary for the Contractor to create the SESC Implementation Plan. The intent of this plan is to ensure that the Contractor has reviewed and understands the SESC provisions within the plans and specifications.

5. CHECKLIST FOR CONTRACTOR'S SOIL EROSION AND SEDIMENTATION CONTROL IMPLEMENTATION PLAN (For projects that include earth changes or disturb existing vegetation):

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION, DESIGN AND CONSTRUCTION DIVISION
SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM
P.O. Box 30026, Lansing, Michigan 48909

**PROJECT TITLE: DETROIT GARAGE STORM SEWER RECONSTRUCTION**
**PROJECT LOCATION: 1500 E. FERRY STREET, DETROIT, MI 48167**
**PROJECT FILE NUMBER: 591/22274.MNB**
**INDEX NUMBER:**

Prior to the start of earthwork, the Contractor must submit a Soil Erosion and Sedimentation Control (SESC) Implementation Plan to the Michigan Department of Technology, Management and Budget, Soil Erosion and Sedimentation Control Program. The intent of this plan is to ensure that the Contractor has reviewed and understands the SESC provisions within the plans and specifications. The following checklist will provide Contractors with assistance in creating the SESC Implementation Plan.

The SESC Implementation Plan must include:

1. ☐ A written plan or letter demonstrating:
   - ☐ The Contractor's means and methods for the implementation of SESC provisions included within the plans and specifications and compliance with the provisions of Part 91 of PA 451 of 1994, as amended.
   - ☐ The Contractor's plan for dust control.
   - ☐ The Contractor's plan for inspection and maintenance of temporary SESCs.

2. ☐ A map, location plan, drawing, or amended copy of the Project SESC or grading plan showing:
   - ☐ The locations of any stockpiles of soil associated with the Project
   - ☐ The temporary SESC controls associated with stockpiles of soil
   - ☐ The Contractor's suggested or proposed additions or relocations of any temporary or permanent SESCs. associated with the Project plans and specifications (subject to approval by Engineer and DTMB)
   - ☐ Location of site entrances, exits and vehicle routes
   - ☐ Location of site superintendent's/project manager's site trailer or office (for SESC Inspector check-in)

3. ☐ A schedule for the installation and removal of temporary controls and the installation of permanent soil erosion and sedimentation controls in relation to the overall construction schedule.

Submit the above items to the above address.

Upon approval of the Contractor's plan, an "Authorization to Proceed with Earth Change" will be issued by DTMB, Design and Construction Division

# DEMOLITION/REMODELING PROJECT PROCEDURES

Furnish all equipment, materials, labor, and services necessary to complete all building demolition required in connection with the existing building, in order to permit the installation of new Work. The goal of the Owner is to generate the least amount of waste or debris possible. However, inevitable waste and debris that are generated shall be reused, salvaged, or recycled, and disposal in landfills shall be minimized to the extent economically feasible. The Contractor will be required to prepare waste management plan for the collection, handling, storage, transportation, and disposal of the waste generated at the construction site for the Owner's review and approval. The Contractor will be required to produce waste management progress reports.

1. Locations: Notations are made in various places on the Drawings to call attention to building demolition which is required; however, these Drawings are not intended to show each and every item to be removed. The Contractor and the Subcontractors for the various trades must remove the materials related to their respective trades as required to permit the construction of the new Work as shown.

2. Permits: The Contractor must secure from the appropriate agencies all required permits necessary for proper execution of the work before starting work on the project site. All fees for securing the permits must be paid by the Contractor, including all inspection costs which may be legally assessed by the Bureau of Construction Codes in accordance with the authority granted under the Public Act 1980 PA 371, as amended.

3. Enclosures: Where it is necessary to make alterations to walls, floors or roof of the existing building, the Contractor must provide and maintain dustproof partitions to separate the parts where Work is being done from the adjoining parts occupied by the State Agency. Where any parts are opened and exposed to the elements, the Contractor must provide weather tight enclosures to fully protect the structure and its contents.

4. Waste Management Plan: The management plan must address waste source identification and separation, returns, reuse and salvage, recycling, landfill options, alternatives to landfilling, materials handling procedures and transportation.

5. Preparation: Protect all existing Work that is to remain and restore in an approved manner any such Work that becomes damaged.

   5.1 Rubbish and debris resulting from the Work must be removed immediately from the site by the Contractor. However, any recyclable materials must be recycled; the Contractor will be required to use alternatives to landfills for waste disposal such as reuse or recycle of asphalt, bricks, concrete, masonry, plastics, paint, glass, carpet, metals, wood, drywall, insulation, and any other waste materials to the extent practical.

   5.2 Unless otherwise specified, the Agency will remove existing furniture, drapery tracks, draperies, window blinds, and other equipment items, which might interfere with the new construction.

6. Coordination: Demolition work, in connection with any new unit of Work, must not be commenced until all new materials required for completion of that new item of Work are at hand.

7. Waste Management Plan Progress Reports: Submit an updated report with the payment requests. The progress reports shall include:
   a. The amount of waste sent to a landfill, tipping fees paid and the total disposal cost. Include supporting documents such as manifests, weight tickets, receipts and/or invoices.

   b. Records for each material recycled/reused/salvaged from the project including the amount, date removed from the job site, final destination, transportation cost, recycled materials, and the net cost/ savings.

   c. Breakdown of waste by type generated to date.

   d. Recycling/salvage/landfill rates.

   e. Percent of waste recycled/salvaged to date.

# HAZARDOUS MATERIALS PROJECT PROCEDURES

1. The Contractor must use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material in accordance with all federal, state, and local Laws. If the Contractor encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the Contractor must immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions.

2. This project has been identified by the DTMB-SFA as having a possibility of containing Hazardous Waste materials to be legally removed from the Project job site in order to complete the Work as described in the Proposal And Contract. If removal of friable asbestos material is required, the Contractor must contact the Air Quality Division, Department of Environment, Great Lakes, and Energy, at **(5l7) 284-6773**, for a permit and furnish all training, labor, materials, services, insurance, and equipment necessary to carry out the removal operations of all Hazardous Materials from the Project job site, as identified by the Scope of Work, or encountered on the Project job site, in accordance with State and Federal Hazardous Waste Codes. A Contract Change Order will be written to modify the existing Contract to pay for the additional cost.

3. Environmental Hazards (air, water, land and liquid industrial) are handled by the Waste and Hazardous Materials Division, Michigan Department of Environment, Great Lakes, and Energy (EGLE) in carrying out the requirements of the Federal Environmental Protection Agency (EPA). For general information and/or a copy of the latest regulations and publications call (517) 335-2690.

4. The Michigan Occupational Safety and Health Administration (MIOSHA) provides protection and regulations for the safety and health of workers. The Department of Licensing and Regulatory Affairs provides for the safety of workers. The Department of Health & Human Services provides for the health of workers (517/373-3740) (TDD 517/373-3573).

   4.1 Contractor must post any applicable State and/or Federal government regulations at the job site in a prominent location.

   4.2 Contractor must be responsible for training their workers in safe work practices and in proper removal methods when coming in contact with hazardous chemicals.

5. Applicable Regulations:

   5.1 Natural Resources and Environmental Protection Act – PA 451 of 1994, as amended, including Part 111 – Hazardous Waste Management, Part 121 – Liquid Industrial Waste and Part 147 – PCB compounds.

   5.2 RCRA, 1976 - Resource Conservation and Recovery Act: This federal statute regulates generation, transportation, treatment, storage, or disposal of hazardous wastes nationally.

   5.3 TSCA, 1979 – Toxic Substances Control Act: This statute regulates the generation, transportation, storage, and disposal of industrial chemicals such as PCBs.

6. Definitions: Hazardous substances are ignitable, corrosive, reactive, and/or toxic, based on their chemical characteristics.

   6.1 Under Federal and Michigan Law, a Small Quantity Generator of hazardous waste provides from 220 to less than 2,000 lbs./month or never accumulates 2,200 lbs. or more.

   6.2 A Generator size provider of hazardous waste provides 2,200 lbs. or more/month or accumulates above 2,200 lbs.

7. Disposals: To use an off-site hazardous waste disposal facility, the Contractor must use the Uniform Hazardous Waste Manifest (shipping paper). Small quantities of hazardous waste may not be disposed of in sanitary landfills used for solid waste.

8. Federal, state, and local Laws and regulations may apply to the storage, handling and disposal of Hazardous Materials and wastes at each State Agency. Contact the **Environmental Assistance Center** of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) at **1-800-662-9278**, Fax to: 517-241-0673 or e-mail to: DEQ-EAD-env-assist@michigan.gov for general EGLE information including direct and referral assistance on air, water and wetlands permits; contaminated site clean-ups; underground storage tank removals and remediation; hazardous and solid waste disposal; pollution prevention and recycling; and compliance-related assistance. The Center provides businesses, municipalities, and the general public with a single point of access to EGLE's environmental programs.

# ASBESTOS ABATEMENT PROJECT PROCEDURES

Should this Work require the renovation or demolition of a building or structure initially constructed on or prior to 1980, the Contractor will use the attached copy of a Comprehensive Asbestos Building Survey for those portions of the building or structure being impacted and must plan his or her work to minimize disturbance of any known or assumed asbestos containing materials (ACM). In addition, if this building or structure was constructed on or prior to 1980, the Contractor's On-Site Superintendent and all Subcontractor On-Site Superintendents for trades that could potentially disturb known or assumed ACM, must, as a minimum, have and provide documentation of current Asbestos Awareness Training.

If the Comprehensive Asbestos Building Survey identifies known or assumed ACM that will potentially be disturbed as a part of the Contractor's renovation or demolition activities, the Contractor must remove, transport, and dispose of these materials at no additional cost to the Owner and prior to any other work taking place within the immediate vicinity of said material. If required, the Contractor must provide the Owner a minimum of 10 working day notification prior to the start of any asbestos abatement activities with abatement in occupied buildings being completed even if they will be conducted during off hours (nights, weekends, and state holidays).

If the Contractor encounters a suspected ACM that was not previously identified within the Comprehensive Asbestos Building Survey, the Contractor must immediately stop all affected work, give written notice to the Owner of the conditions encountered, and take appropriate health and safety precautions. If, after providing Owner notification, the Contractor is directed to sample and/or remove the suspected ACM in question, a Contract Change Order will be written to modify the existing Contract to pay for the additional cost. Any abatement shall be completed in accordance with the requirements of this Section.

If removal of ACM is required, removal must be completed by a contractor currently licensed to remove asbestos by the State of Michigan, Department of Licensing and Regulatory Affairs (DLARA) Asbestos Program and abatement must be performed in accordance with all federal, state, and local Laws and Regulations. Prior to commencing any asbestos abatement activities, the licensed abatement contractor must submit, as required by Federal, State and Local Laws and Regulations, a "Notification of Intent to Renovate/Demolish" to both the State of Michigan, Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division and to the DLARA, Asbestos Program, to comply with National Emission Standards for Hazardous Air Pollutants (NESHAP), and the Clean Air Act (CAA). All regulated ACM must be disposed of at an approved Type II (general refuse) landfill and must be in leak-tight wrapping or containers. ACM that is non friable and is not in poor condition or will not become regulated ACM at any time can be disposed of in a Type III (construction debris) landfill.

At the completion of each abatement activity, the Contractor must perform clearance testing in accordance with National Institute for Occupational Safety and Health (NIOSH) 582 "Sampling and Evaluating Airborne Asbestos Dust". All air samples shall indicate concentrations of less than 0.01 fibers/cc for clearance to be met. Clearance testing shall be performed by a third-party Asbestos Consultant. The Asbestos Consultant selected by the Contractor shall be experienced and knowledgeable about the methods for asbestos air sampling and be able to select representative numbers and locations of samples. It is mandatory that the Asbestos Consultant's on-site hygienist performing sampling and analysis have certification that he/she has passed a NIOSH 582 or equivalent course.

The NESHAP asbestos regulations, notification form, guidelines and fact sheets are available on EGLE's web site www.michigan.gov/egle under heading Air; then click on Compliance; then click on Asbestos NESHAP Program. For guidelines on submitting notifications pursuant to the Asbestos Contractors Licensing Act, contact the DLARA, Occupational Health Division, Asbestos Program at (517) 322-1320 or visit DLARA's web site www.michigan.gov/asbestos.

# LEAD ABATEMENT PROJECT PROCEDURES

Should this Work require the renovation or demolition of a building or structure, the workers are assumed to be exposed to lead or materials containing lead above acceptable levels until proven otherwise through personal air sampling and analysis. The Contractor shall take all steps necessary to assure that his/her employees, are not exposed to lead at concentrations greater than the Permissible Exposure Limit as per the State of Michigan Department of Licensing and Regulatory Affairs Occupational Health Standards Part 603 “Lead Exposure in Construction”. In addition, the Contractor shall convey this same requirement to all subcontractors that may be under his/her control.

The employer shall comply with the Michigan Lead Abatement Act, as amended, and the Lead Hazard Control rules and must communicate information concerning lead hazards according to the requirements of Michigan Occupational Safety and Health Administration (MIOSHA) Part 603 and the Occupational Safety and Health Administration’s (OSHA's) Hazard Communication Standard for the construction industry, 29 CFR 1926.59, including but not limited to safety equipment (e.g. personal fit-tested and approved respirators and protective clothing), worker rotation (on a short-cycle and regular basis), working practices (e.g. sanding, cutting, grinding, abraded, burning and heat-gun stripping of lead based paint are not allowed), the requirements concerning warning signs and labels, material safety data sheets (MSDS), and employee information and training. Employers shall comply with the requirements of 29 CFR 1926.62(l) - Employee Information and Training.

If lead or materials containing lead will be disturbed as a part of the work to be performed, the Contractor must remove, transport, and dispose of these materials at no additional cost to the Owner and prior to any other work taking place within the immediate vicinity of said material. The Contractor must provide the Owner a minimum 10 working day notification prior to the start of any lead abatement activities with abatement in occupied buildings being completed even if they will be conducted during off hours (nights, weekends, and state holidays). Abatement is defined as an activity specifically designed to permanently remove lead paint, lead-contaminated dust or other lead containing materials, the installation of a permanent enclosure or encapsulation of lead paint or other lead containing materials, the replacement of lead-painted surfaces or fixtures, the removal or covering of lead-contaminated soil, and any preparation, cleanup, disposal, and post-abatement clearance testing associated with these activities. Renovation, remodeling, landscaping, or other activity, that is not designed to permanently eliminate lead paint hazards, but is instead designed to repair, restore, or remodel a structure, or housing unit even though the activity may incidentally result in a reduction or elimination of a lead paint hazard is not considered abatement.

If abatement of lead or materials containing lead is required, abatement must be completed by a qualified Lead Abatement Contractor. In addition, Specifications for the Lead Abatement should be based upon a Lead Inspection/Risk Assessment report. The Lead Inspection/Risk Assessment report and clearance testing upon completion should be performed by a Certified Inspector or Risk Assessor. Lead abatement including clearance testing shall be performed in accordance with the State of Michigan, Lead Abatement Act, Part 54A Lead Abatement and with all other federal, state, and local Laws and Regulations that may apply

For additional information about certifications, guidance, and regulations for lead hazard control activities, visit www.michigan.gov/lead.

# APPENDIX III

# STATE OF MICHGIAN PREVAILING WAGE SCHEDULES AND FEDERAL PROVISIONS ADDENDUM & WAGE RATE SCHEDULES

## Federal Provisions Addendum

This addendum applies to purchases that will be paid for in whole or in part with funds obtained from the federal government. The provisions below are required and the language is not negotiable. If any provision below conflicts with the State's terms and conditions, including any attachments, schedules, or exhibits to the State's Contract, the provisions below take priority to the extent a provision is required by federal law; otherwise, the order of precedence set forth in the Contract applies. Hyperlinks are provided for convenience only; broken hyperlinks will not relieve Contractor from compliance with the law.

### 1. Equal Employment Opportunity

If this Contract is a "**federally assisted construction contract**" as defined in 41 CFR Part 60-1.3, and except as otherwise may be provided under 41 CFR Part 60, then during 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, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided 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 all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

(4) 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 advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit

access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 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 the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

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

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

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

**2. Davis-Bacon Act (Prevailing Wage)**

If this Contract is a **prime construction contracts** in excess of $2,000, the Contractor (and its Subcontractors) must comply with the Davis-Bacon Act (40 USC 3141-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”), and during performance of this Contract the Contractor agrees as follows:

(1) All transactions regarding this contract shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29C.F.R. pt. 5 as may be applicable. The contractor

shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable.

(2) Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor.

(3) Additionally, contractors are required to pay wages not less than once a week.

**3. Copeland "Anti-Kickback" Act**

If this Contract is a contract for construction or repair work in excess of $2,000 where the Davis-Bacon Act applies, the Contractor must comply with the Copeland "Anti-Kickback" Act (40 USC 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"), which prohibits the Contractor and subrecipients from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled, and during performance of this Contract the Contractor agrees as follows:

(1) Contractor. The Contractor shall comply with 18 U.S.C. §874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.

(2) Subcontracts. The Contractor or Subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA or the applicable federal awarding 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 of these contract clauses.

(3) Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a Contractor and Subcontractor as provided in 29 C.F.R. § 5.12.

**4. Contract Work Hours and Safety Standards Act**

If the Contract is **in excess of $100,000** and **involves the employment of mechanics or laborers**, the Contractor must comply with 40 USC 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5), as applicable, and during performance of this Contract the Contractor agrees as follows:

(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 (1) of this section the Contractor and any Subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and Subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of $27 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 (1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The State 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 (2) of this section.

(4) Subcontracts. The Contractor or Subcontractor shall insert in any subcontracts the clauses set forth in paragraph (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 (1) through (4) of this section.

**5. Rights to Inventions Made Under a Contract or Agreement**

If the Contract is funded by a federal "funding agreement" as defined under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

**6. Clean Air Act and the Federal Water Pollution Control Act**

If this Contract is **in excess of $150,000,** the Contractor must comply with all applicable standards, orders, and regulations issued under the Clean Air Act (42 USC 7401-7671q) and the Federal Water Pollution Control Act (33 USC 1251-1387), and during performance of this Contract the Contractor agrees as follows:

Clean Air Act

1. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
2. The Contractor agrees to report each violation to the State and understands and agrees that the State will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency or the applicable federal awarding agency, and the appropriate Environmental Protection Agency Regional Office.
3. The Contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA or the applicable federal awarding agency.

Federal Water Pollution Control Act

1. The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
2. The Contractor agrees to report each violation to the State and understands and agrees that the State will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency or the applicable federal awarding agency, and the appropriate Environmental Protection Agency Regional Office.
3. The Contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA or the applicable federal awarding agency.

### 7. Debarment and Suspension

A "contract award" (see 2 CFR 180.220) must not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (51 FR 6370; February 21, 1986) and 12689 (54 FR 34131; August 18, 1989), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

(1) This Contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the Contractor is required to verify that none of the Contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The Contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by the State. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the State, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

### 8. Byrd Anti-Lobbying Amendment

Contractors who apply or bid for an award of **$100,000 or more** shall file the required certification in Exhibit 1 – Byrd Anti-Lobbying Certification below. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

### 9. Procurement of Recovered Materials

Under 2 CFR 200.322, Contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act.

(1) In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—

1. Competitively within a timeframe providing for compliance with the contract performance schedule;

2. Meeting contract performance requirements; or

3. At a reasonable price.

(2) Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive- procurement-guideline-cpg-program.

(3) The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

**10. Additional FEMA Contract Provisions.**

The following provisions apply to purchases that will be paid for in whole or in part with funds obtained from the Federal Emergency Management Agency (FEMA):

**(1)** Access to Records. The following access to records requirements apply to this contract:

**a.** The Contractor agrees to provide the State, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

**b.** The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

**c.** The Contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.

**d.** In compliance with the Disaster Recovery Act of 2018, the State and the Contractor acknowledge and agree that no language in this contract is intended to prohibit audits or internal reviews by the FEMA Administrator or the Comptroller General of the United States.

**(2)** Changes.

See the provisions regarding modifications or change notice in the Contract Terms.

**(3)** DHS Seal, Logo, And Flags

The Contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

**(4)** Compliance with Federal Law, Regulations, and Executive Orders

This is an acknowledgement that FEMA financial assistance will be used to fund all or a portion of the contract. The Contractor will comply with all applicable Federal law, regulations, executive orders, FEMA policies, procedures, and directives.

**(5)** No Obligation by Federal Government

The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the State, Contractor, or any other party pertaining to any matter resulting from the Contract."

**(6)** Program Fraud and False or Fraudulent Statements or Related Acts

The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract.

**Exhibit 1 - Byrd Anti-Lobbying Certification**

Contractor must complete this certification if the purchase will be paid for in whole or in part with funds obtained from the federal government and the purchase is greater than $100,000.

APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

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

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

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

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

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

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

_____

Signature of Contractor's Authorized Official

_____

Name and Title of Contractor's Authorized Official

_____

Date

**§ 200.322 Domestic Preferences for Procurements**

(a) As appropriate and to the extent consistent with law, the non-Federal entity should, to the greatest extent practicable under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award.

(b) For purposes of this section:

(1) “Produced in the United States” means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

(2) “Manufactured products” means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

## FEDERAL STATE and LOCAL FISCAL RECOVERY FUNDS (SLFRF) PROJECT SPECIFIC REQUIREMENTS

The funding being used for this project is Federal State and Local Fiscal Recovery Funds (SLFRF). As a result, additional provisions apply and are included in this Attachment.

Each primary contracted contractor with the DTMB must register with the Federal System for Award Management (SAM) must register prior to contract execution. The SAM website is https://sam.gov/content/home. The direct hyperlink for SAM.gov registration is https://sam.gov/content/entity-registration

As of April 4, 2022, the Federal government will use a Unique Entity Identifier (UEI) created in SAM.gov as the official subrecipient identifier. All primary contracted contractors with the DTMB will be required to maintain an active registration on SAM.gov. To receive payment, all primary contracted vendors need to have a Unique Entity Identifier (UEI) number and have the UEI entered in their SIGMA account. Information on the UEI and sign up can be obtained at: https://www.gsa.gov/about-us/organization/federal-acquisition-service/office-of-systems-management/integrated-award-environment-iae/iae-systems-information-kit/unique-entity-identifier-update

Contractor is to fill in and provide the following documentation for use in SLFRF reporting prior to Contract Execution for use in the reporting requirements:

Contractor's UEI _____

Contractor's Full Legal Name _____

Primary Point-of-Contact Email Address _____

Business Address _____

City Business is located _____

State Business is located _____

US Zip Code + 4 digits _____

GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF LABOR AND ECONOMIC OPPORTUNITY
WAGE AND HOUR DIVISION

SUSAN CORBIN
DIRECTOR

# Prevailing Wage Rates for State Funded Projects
## Official Rate Schedule

| | |
|---|---|
| **ORS#:** | ORS-001807 |
| **Date Issued:** | 01/31/2025 |
| **Contract Award By Date:** | 05/01/2025 |
| **Contracting Agency:** | DTMB Design & Construction Division (CA-0007) |
| **Contracting Agency Representative:** | Don Klein (KleinD4@michigan.gov) |
| **Project Number:** | 591/22274.MNB |
| **Project Name:** | Detroit Garage |

**Project Description:** Sewer Reconstruction Project

**FOR ALL AWARDED CONTRACTS ONLY**

- Every Contractor and Subcontractors shall keep Posted on the Construction Site, in a conspicuous place, a copy of all applicable prevailing wage rate schedules contained in a contract.
- The Prevailing rate schedule provides an hourly rate which includes wage and fringe benefit totals for designated classifications.
- Please refer to WHD-9917 & WHD 9918 for any additional information.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Boilermaker** | **Boilermaker** | **05/10/2024** |

**Classification Description:** Boilermaker

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $72.47 | $107.55 | $142.63 |
| Apprentice: 1st Period | $53.53 | $79.15 | $104.75 |
| Apprentice: 2nd Period | $55.14 | $81.56 | $107.97 |
| Apprentice: 3rd Period | $56.73 | $83.94 | $111.15 |
| Apprentice: 4th Period | $58.31 | $86.31 | $114.31 |
| Apprentice: 5th Period | $59.85 | $88.62 | $117.39 |
| Apprentice: 6th Period | $63.03 | $93.39 | $123.75 |
| Apprentice: 7th Period | $66.17 | $98.10 | $130.03 |
| Apprentice: 8th Period | $69.32 | $102.83 | $136.33 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $90.82 |
| 10th hour | $90.82 |
| Beyond 10 hours | $90.82 |
| **Saturday** | |
| First 8 hours | $90.82 |
| 9th hour | $90.82 |
| 10th hour | $90.82 |
| Beyond 10 hours | $90.82 |
| **Sunday/Holiday** | $109.17 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Bricklayers, Stone Mason, Pointer, Cleaner & Caulker - BAC 2 - Metro Detroit** | **Bricklayer** | **09/24/2024** |

**Classification Description:** Bricklayers, Stone Mason, Pointer, Cleaner & Caulker

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $65.01 | $97.53 | $130.02 |
| Apprentice: Bricklayer Apprentice Level 5 | $52.46 | $78.71 | $104.92 |
| Apprentice: Bricklayer Apprentice Level 6 | $54.31 | $81.48 | $108.62 |
| Apprentice: Bricklayers Apprentice 2nd Level | $46.91 | $70.38 | $93.82 |
| Apprentice: Bricklayers Apprentice 4th Level | $50.61 | $75.93 | $101.22 |
| Apprentice: Bricklayers Apprentice Level 1 | $45.06 | $67.61 | $90.12 |
| Apprentice: Bricklayers Apprentice Level 3 | $48.76 | $73.16 | $97.52 |
| Apprentice: Bricklayers Apprentice Level 7&8 | $56.16 | $84.26 | $112.32 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $65.01 |
| 10th hour | $65.01 |
| Beyond 10 hours | $65.01 |
| **Saturday** | |
| First 8 hours | $65.01 |
| 9th hour | $65.01 |
| 10th hour | $65.01 |
| Beyond 10 hours | $65.01 |
| **Sunday/Holiday** | $130.02 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Between Nov. 1 and Apr 30, if inclement weather, or other conditions beyond the Employer’s control, Saturdays may be worked as make-up days. Make-up time shall be paid at the straight time rate until forty hrs are worked unless the standard workweek included a holiday, then 32 hrs straight time

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Carpenter/Piledriver-687-Z1** | **Carpenter** | **09/16/2024** |

**Classification Description:** Carpenter/Piledriver

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $72.05 | $92.86 | $113.66 |
| Apprentice: 1st year | $47.22 | $59.81 | $72.39 |
| Apprentice: 2nd year | $53.43 | $68.07 | $82.71 |
| Apprentice: 3rd year | $59.64 | $76.34 | $93.03 |
| Apprentice: 4th year | $65.85 | $84.60 | $103.35 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $92.86 |
| 10th hour | $92.86 |
| Beyond 10 hours | $92.86 |
| **Saturday** | |
| First 8 hours | $92.86 |
| 9th hour | $92.86 |
| 10th hour | $92.86 |
| Beyond 10 hours | $92.86 |
| **Sunday/Holiday** | $113.66 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Yes, but Saturdays may not be used as a make-up day. One and a
half (1 ½) the straight time rate applies to all Saturday hours, and those over 40 hours per week.
Double time applies on all Sundays, Holidays, and all time over 12 hours per day.

**Base Rate Comment:** 4-10s allowed Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Carpet & Resilient Floor Layer** | **Carpenter** | **05/10/2024** |

**Classification Description:** Carpet and Resilient Floor Layer, (does not include installation of prefabricated formica & parquet flooring which is to be paid carpenter rate)

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $64.51 | $82.93 | $101.34 |
| Apprentice: Apprentice 1st Year | $42.73 | $53.88 | $65.03 |
| Apprentice: Apprentice 2nd Year | $48.17 | $61.14 | $74.10 |
| Apprentice: Apprentice 3rd Year | $53.61 | $68.39 | $83.17 |
| Apprentice: Apprentice 4th Year | $59.07 | $75.67 | $92.27 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $64.51 |
| 10th hour | $64.51 |
| Beyond 10 hours | $82.92 |
| **Saturday** | |
| First 8 hours | $82.92 |
| 9th hour | $82.92 |
| 10th hour | $82.92 |
| Beyond 10 hours | $101.34 |
| **Sunday/Holiday** | $0.00 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Diver Tender-687-Z1** | **Carpenter** | **09/16/2024** |

**Classification Description:** Journeyman-Diver Tender

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $71.16 | $91.97 | $112.77 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $91.97 |
| 10th hour | $91.97 |
| Beyond 10 hours | $91.97 |
| **Saturday** | |
| First 8 hours | $91.97 |
| 9th hour | $91.97 |
| 10th hour | $91.97 |
| Beyond 10 hours | $91.97 |
| **Sunday/Holiday** | $112.77 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Yes, but Saturdays may not be used as a make-up day. One and a
half (1 ½) the straight time rate applies to all Saturday hours, and those over 40 hours per week.
Double time applies on all Sundays, Holidays, and all time over 12 hours per day.

**Overtime Rate Comment:** Double time over 12 hours/day.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class A Laborer - Zone A** | **Class A Laborer** | **05/10/2024** |

**Classification Description:** Construction Laborer, Demolition Laborer, Mason Tender, Carpenter Tender, Drywall Handler, Concrete Laborer, Cement Finisher tender, concrete chute and concrete Bucket Handler, Concrete Laborer, Cement Finisher Tender

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $50.10 | $64.48 | $78.85 |
| Apprentice: 0-1,000 Hours | $42.91 | $53.69 | $64.47 |
| Apprentice: 1,001-2,000 Hours | $44.35 | $55.85 | $67.35 |
| Apprentice: 2,001-3,000 Hours | $45.79 | $58.01 | $70.23 |
| Apprentice: 3,001-4,000 Hours | $48.66 | $62.31 | $75.97 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $64.48 |
| 10th hour | $64.48 |
| Beyond 10 hours | $64.48 |
| **Saturday** | |
| First 8 hours | $64.48 |
| 9th hour | $64.48 |
| 10th hour | $64.48 |
| Beyond 10 hours | $64.48 |
| **Sunday/Holiday** | $78.85 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Saturday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Communication Technician** | **Communication Technician** | **05/13/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.89 | $98.24 | $128.58 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $98.24 |
| **Saturday** | |
| First 8 hours | $98.24 |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $98.24 |
| **Sunday/Holiday** | $128.58 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Diver-687-Z1** | **Diver** | **10/01/2024** |

**Classification Description:** Diver

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $82.48 | $107.41 | $132.34 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $107.41 |
| 10th hour | $107.41 |
| Beyond 10 hours | $107.41 |
| **Saturday** | |
| First 8 hours | $107.41 |
| 9th hour | $107.41 |
| 10th hour | $107.41 |
| Beyond 10 hours | $107.41 |
| **Sunday/Holiday** | $132.34 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Yes, but Saturdays may not be used as a make-up day. One and a
half (1 ½) the straight time rate applies to all Saturday hours, and those over 40 hours per week.
Double time applies on all Sundays, Holidays, and all time over 12 hours per day.

**Overtime Rate Comment:** Double time due when over 12 hours worked per day

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Drywall Taper** | **Drywall** | **05/10/2024** |

**Classification Description:** Drywall Taper
Four 10s allowed Monday-Thursday

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $45.91 | $59.74 | $73.56 |
| Apprentice: 4th 6 months | $41.76 | $53.51 | $65.26 |
| Apprentice: First 3 months | $32.08 | $38.99 | $45.90 |
| Apprentice: Second 3 months | $34.85 | $43.14 | $51.44 |
| Apprentice: Second 6 months | $37.62 | $47.30 | $56.98 |
| Apprentice: Third 6 months | $40.38 | $51.44 | $62.50 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $59.74 |
| 10th hour | $59.74 |
| Beyond 10 hours | $73.56 |
| **Saturday** | |
| First 8 hours | $59.74 |
| 9th hour | $73.56 |
| 10th hour | $73.56 |
| Beyond 10 hours | $73.56 |
| **Sunday/Holiday** | $73.56 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Friday make-up day  for bad weather or holidays

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Electrician - IW** | **Electrician** | **05/10/2024** |

**Classification Description:** Inside Wireman

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $71.28 | $98.14 | $121.40 |
| Apprentice: 1st Period | $45.69 | $59.77 | $70.23 |
| Apprentice: 2nd Period | $48.01 | $63.24 | $74.87 |
| Apprentice: 3rd Period | $50.34 | $66.74 | $79.53 |
| Apprentice: 4th Period | $52.66 | $70.22 | $84.17 |
| Apprentice: 5th Period | $54.99 | $73.71 | $88.83 |
| Apprentice: 6th Period | $59.65 | $80.70 | $98.15 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $93.86 |
| 10th hour | $93.86 |
| Beyond 10 hours | $93.86 |
| **Saturday** | |
| First 8 hours | $93.86 |
| 9th hour | $93.86 |
| 10th hour | $93.86 |
| Beyond 10 hours | $93.86 |
| **Sunday/Holiday** | $116.45 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Electrician - SC** | **Electrician** | **05/10/2024** |

**Classification Description:** Sound and Communication Installer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $44.79 | $60.31 | $75.82 |
| Apprentice: Period 1 | $29.28 | $37.04 | $44.79 |
| Apprentice: Period 2 | $30.84 | $39.99 | $48.72 |
| Apprentice: Period 3 | $32.38 | $41.68 | $50.99 |
| Apprentice: Period 4 | $33.94 | $44.03 | $54.11 |
| Apprentice: Period 5 | $35.48 | $46.34 | $57.19 |
| Apprentice: Period 6 | $37.04 | $48.67 | $60.31 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $59.85 |
| 10th hour | $59.85 |
| Beyond 10 hours | $59.85 |
| **Saturday** | |
| First 8 hours | $59.85 |
| 9th hour | $59.85 |
| 10th hour | $59.85 |
| Beyond 10 hours | $59.85 |
| **Sunday/Holiday** | $74.91 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Electrician - SCT** | **Electrician** | **05/10/2024** |

**Classification Description:** Sound and Communication Technician I

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $52.52 | $71.89 | $91.27 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $71.33 |
| 10th hour | $71.33 |
| Beyond 10 hours | $71.33 |
| **Saturday** | |
| First 8 hours | $71.33 |
| 9th hour | $71.33 |
| 10th hour | $71.33 |
| Beyond 10 hours | $71.33 |
| **Sunday/Holiday** | $90.14 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Elevator Constructor Mechanic** | **Elevator Constructor** | **05/10/2024** |

**Classification Description:** Elevator Constructor Mechanic

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $96.27 | $124.00 | $151.73 |
| Apprentice: 1st Year Apprentice | $70.42 | $85.67 | $100.92 |
| Apprentice: 2nd Year Apprentice | $75.97 | $94.00 | $112.02 |
| Apprentice: 3rd Year Apprentice | $78.74 | $98.15 | $117.56 |
| Apprentice: 4th Year Apprentice | $84.29 | $106.48 | $128.66 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $151.73 |
| 10th hour | $151.73 |
| Beyond 10 hours | $151.73 |
| **Saturday** | |
| First 8 hours | $151.73 |
| 9th hour | $151.73 |
| 10th hour | $151.73 |
| Beyond 10 hours | $151.73 |
| **Sunday/Holiday** | $151.73 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Fiber Optic Splicer** | **Fiber Optic Splicer** | **05/13/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.89 | $98.24 | $128.58 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $98.24 |
| **Saturday** | |
| First 8 hours | $98.24 |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $98.24 |
| **Sunday/Holiday** | $128.58 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Foreman** | **Foreman** | **05/10/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.89 | $98.24 | $128.58 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $90.71 |
| 10th hour | $90.71 |
| Beyond 10 hours | $90.71 |
| **Saturday** | |
| First 8 hours | $90.71 |
| 9th hour | $90.71 |
| 10th hour | $90.71 |
| Beyond 10 hours | $90.71 |
| **Sunday/Holiday** | $113.52 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Foreman** | **Foreman** | **05/10/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.89 | $98.24 | $128.58 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $90.71 |
| 10th hour | $90.71 |
| Beyond 10 hours | $90.71 |
| **Saturday** | |
| First 8 hours | $90.71 |
| 9th hour | $90.71 |
| 10th hour | $90.71 |
| Beyond 10 hours | $90.71 |
| **Sunday/Holiday** | $113.52 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Foreman** | **Foreman** | **05/10/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.89 | $98.24 | $128.58 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $90.71 |
| 10th hour | $90.71 |
| Beyond 10 hours | $90.71 |
| **Saturday** | |
| First 8 hours | $90.71 |
| 9th hour | $90.71 |
| 10th hour | $90.71 |
| Beyond 10 hours | $90.71 |
| **Sunday/Holiday** | $113.52 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Foreman** | **Foreman** | **05/10/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.89 | $98.24 | $128.58 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $90.71 |
| 10th hour | $90.71 |
| Beyond 10 hours | $90.71 |
| **Saturday** | |
| First 8 hours | $90.71 |
| 9th hour | $90.71 |
| 10th hour | $90.71 |
| Beyond 10 hours | $90.71 |
| **Sunday/Holiday** | $113.52 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Foreman** | **Foreman** | **05/10/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $75.47 | $109.62 | $143.74 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $109.61 |
| 10th hour | $109.61 |
| Beyond 10 hours | $109.61 |
| **Saturday** | |
| First 8 hours | $109.61 |
| 9th hour | $109.61 |
| 10th hour | $109.61 |
| Beyond 10 hours | $109.61 |
| **Sunday/Holiday** | $143.74 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Foreman** | **Foreman** | **05/10/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $75.47 | $109.61 | $143.74 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $101.14 |
| 10th hour | $101.14 |
| Beyond 10 hours | $101.14 |
| **Saturday** | |
| First 8 hours | $101.14 |
| 9th hour | $101.14 |
| 10th hour | $101.14 |
| Beyond 10 hours | $101.14 |
| **Sunday/Holiday** | $126.80 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Foreman** | **Foreman** | **05/10/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $76.98 | $111.87 | $146.76 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $103.22 |
| 10th hour | $103.22 |
| Beyond 10 hours | $103.22 |
| **Saturday** | |
| First 8 hours | $103.22 |
| 9th hour | $103.22 |
| 10th hour | $103.22 |
| Beyond 10 hours | $103.22 |
| **Sunday/Holiday** | $129.45 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Glazier** | **Glazier** | **05/10/2024** |

**Classification Description:** Glazier
If 4 10 hour day workweek is scheduled, four 10s must be consecutive, M-F.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $53.55 | $70.10 | $86.65 |
| Apprentice: 1st 6 months | $37.00 | $45.27 | $53.55 |
| Apprentice: 2nd 6 months | $37.75 | $46.40 | $55.05 |
| Apprentice: 3rd 6 months | $41.97 | $52.73 | $63.49 |
| Apprentice: 4th 6 months | $43.62 | $55.21 | $66.79 |
| Apprentice: 5th 6 months | $45.27 | $57.68 | $70.09 |
| Apprentice: 6th 6 months | $46.93 | $60.17 | $73.41 |
| Apprentice: 7th 6 months | $48.59 | $62.66 | $76.73 |
| Apprentice: 8th 6 months | $51.89 | $67.61 | $83.33 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $70.10 |
| 10th hour | $70.10 |
| Beyond 10 hours | $70.10 |
| **Saturday** | |
| First 8 hours | $70.10 |
| 9th hour | $70.10 |
| 10th hour | $70.10 |
| Beyond 10 hours | $70.10 |
| **Sunday/Holiday** | $86.65 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Heat & Frost Insulator - Spray Insulation** | **Heat and Frost Insulator** | **05/10/2024** |

**Classification Description:** Spray Insulation

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $25.29 | $36.51 | $47.73 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $36.51 |
| 10th hour | $36.51 |
| Beyond 10 hours | $36.51 |
| **Saturday** | |
| First 8 hours | $36.51 |
| 9th hour | $36.51 |
| 10th hour | $36.51 |
| Beyond 10 hours | $36.51 |
| **Sunday/Holiday** | $36.51 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Heat & Frost Insulator Asbestos** | **Heat and Frost Insulator** | **05/10/2024** |

**Classification Description:** Heat and Frost Insulators and Asbestos Workers  4-10s must be worked a minimum of 2 weeks consecutively, Monday thru Thursday. Hours worked in excess of 10 will be paid at double time. Hours worked on the fifth day, Monday thru Friday @ time and half

### Wage Rates

| | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $62.65 | $78.41 | $94.16 |
| Apprentice: 1st Year | $46.90 | $54.78 | $62.66 |
| Apprentice: 2nd Year | $50.05 | $59.50 | $68.96 |
| Apprentice: 3rd Year | $53.20 | $64.23 | $75.26 |
| Apprentice: 4th Year | $56.35 | $68.96 | $81.56 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $78.41 |
| 10th hour | $78.41 |
| Beyond 10 hours | $78.41 |
| **Saturday** | |
| First 8 hours | $78.41 |
| 9th hour | $78.41 |
| 10th hour | $78.41 |
| Beyond 10 hours | $78.41 |
| **Sunday/Holiday** | $94.16 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Ironworker - Rigger Machinery Mover** | **Ironworker** | **01/07/2025** |

**Classification Description:** Rigging Work

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $78.78 | $96.21 | $113.63 |
| Apprentice: Level 1 | $54.18 | $65.03 | $75.87 |
| Apprentice: Level 2 | $54.18 | $65.03 | $75.87 |
| Apprentice: Level 3 | $57.29 | $69.02 | $80.75 |
| Apprentice: Level 4 | $60.00 | $72.45 | $84.89 |
| Apprentice: Level 5 | $63.12 | $76.45 | $89.78 |
| Apprentice: Level 6 | $65.82 | $79.86 | $93.90 |
| Apprentice: Level 7 | $68.94 | $83.87 | $98.80 |
| Apprentice: Level 8 | $72.05 | $87.87 | $103.69 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $96.21 |
| 10th hour | $96.21 |
| Beyond 10 hours | $113.63 |
| **Saturday** | |
| First 8 hours | $96.21 |
| 9th hour | $96.21 |
| 10th hour | $96.21 |
| Beyond 10 hours | $113.63 |
| **Sunday/Holiday** | $113.63 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Reinforced Ironworker** | **Ironworker** | **01/07/2025** |

**Classification Description:** Reinforced Iron Work

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $65.70 | $82.42 | $99.13 |
| Apprentice: Level 1 | $54.67 | $66.54 | $78.41 |
| Apprentice: Level 2 | $57.24 | $69.61 | $81.98 |
| Apprentice: Level 3 | $59.13 | $71.84 | $84.54 |
| Apprentice: Level 4 | $62.02 | $75.56 | $89.10 |
| Apprentice: Level 5 | $64.92 | $79.30 | $93.67 |
| Apprentice: Level 6 | $72.26 | $88.98 | $105.69 |
| Apprentice: Level 7 | $72.26 | $88.98 | $105.69 |
| Apprentice: Level 8 | $72.26 | $88.98 | $105.69 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $82.41 |
| 10th hour | $82.41 |
| Beyond 10 hours | $99.13 |
| **Saturday** | |
| First 8 hours | $82.41 |
| 9th hour | $82.41 |
| 10th hour | $82.41 |
| Beyond 10 hours | $99.13 |
| **Sunday/Holiday** | $99.13 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** Yes

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Structural Ironworker** | **Ironworker** | **01/07/2025** |

**Classification Description:** Structural, ornamental, welder and pre-cast

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $78.91 | $105.80 | $132.69 |
| Apprentice: Level 1 | $54.18 | $65.03 | $75.87 |
| Apprentice: Level 2 | $55.00 | $66.20 | $77.40 |
| Apprentice: Level 3 | $57.29 | $69.02 | $80.75 |
| Apprentice: Level 4 | $60.00 | $72.45 | $84.89 |
| Apprentice: Level 5 | $63.12 | $76.45 | $89.78 |
| Apprentice: Level 6 | $65.82 | $79.86 | $93.90 |
| Apprentice: Level 7 | $68.94 | $83.87 | $98.80 |
| Apprentice: Level 8 | $72.05 | $87.87 | $103.69 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $96.69 |
| 10th hour | $96.69 |
| Beyond 10 hours | $114.46 |
| **Saturday** | |
| First 8 hours | $96.69 |
| 9th hour | $96.69 |
| 10th hour | $96.69 |
| Beyond 10 hours | $114.46 |
| **Sunday/Holiday** | $114.46 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Journeyman Signal Technician** | **Journeyman Signal Technician** | **05/13/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.89 | $98.24 | $128.58 |
| Apprentice: Apprentice 1st 6 months | $43.61 | $61.82 | $80.02 |
| Apprentice: Apprentice 2nd 6 months | $46.65 | $66.38 | $86.10 |
| Apprentice: Apprentice 3rd 6 months | $49.68 | $70.92 | $92.16 |
| Apprentice: Apprentice 4th 6 months | $52.71 | $75.47 | $98.22 |
| Apprentice: Apprentice 5th 6 months | $55.75 | $80.03 | $104.30 |
| Apprentice: Apprentice 6th 6months | $61.82 | $89.13 | $116.44 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $98.24 |
| **Saturday** | |
| First 8 hours | $98.24 |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $98.24 |
| **Sunday/Holiday** | $128.58 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Journeyman Specialist** | **Journeyman Specialist** | **05/13/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $76.98 | $111.88 | $146.76 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $111.87 |
| 10th hour | $111.87 |
| Beyond 10 hours | $111.87 |
| **Saturday** | |
| First 8 hours | $111.87 |
| 9th hour | $111.87 |
| 10th hour | $111.87 |
| Beyond 10 hours | $111.87 |
| **Sunday/Holiday** | $146.76 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Labor Crew Foreman** | **Labor Crew Foreman** | **05/13/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $61.86 | $89.19 | $116.52 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $89.19 |
| 10th hour | $89.19 |
| Beyond 10 hours | $89.19 |
| **Saturday** | |
| First 8 hours | $89.19 |
| 9th hour | $89.19 |
| 10th hour | $89.19 |
| Beyond 10 hours | $89.19 |
| **Sunday/Holiday** | $116.52 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Asbestos & Lead Abatement Laborer** | **Laborer** | **05/10/2024** |

**Classification Description:** Asbestos & Lead Abatement Laborer
4 ten hour days @ straight time allowed Monday-Saturday, must be consecutive calendar days

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $50.60 | $65.37 | $80.13 |
| Apprentice: Trainee 600 hours +1 year | $34.07 | $18.89 | $20.54 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $65.37 |
| 10th hour | $65.37 |
| Beyond 10 hours | $65.37 |
| **Saturday** | |
| First 8 hours | $65.37 |
| 9th hour | $65.37 |
| 10th hour | $65.37 |
| Beyond 10 hours | $65.37 |
| **Sunday/Holiday** | $80.13 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - A-B** | **Laborer** | **05/10/2024** |

**Classification Description:** Signal man (on sewer & caisson work); air,electric or gasoline tool operator (including concrete vibrator operator,acetylene torch & air hammer operator); scaffold builder, caisson worker

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $50.40 | $64.93 | $79.45 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $64.93 |
| 10th hour | $64.93 |
| Beyond 10 hours | $64.93 |
| **Saturday** | |
| First 8 hours | $64.93 |
| 9th hour | $64.93 |
| 10th hour | $64.93 |
| Beyond 10 hours | $64.93 |
| **Sunday/Holiday** | $79.45 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Saturday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - A-C** | **Laborer** | **05/10/2024** |

**Classification Description:** Lansing Burner, Blaster & Powder Man; Air, electric Gasoline Tool Operator (Blast furnace work or battery work)

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $50.96 | $65.77 | $80.57 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $65.77 |
| 10th hour | $65.77 |
| Beyond 10 hours | $65.77 |
| **Saturday** | |
| First 8 hours | $65.77 |
| 9th hour | $65.77 |
| 10th hour | $65.77 |
| Beyond 10 hours | $65.77 |
| **Sunday/Holiday** | $80.57 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Saturday,

If conditions beyond the employer/employee's control prevent one or more hours of working during Mon-Fri, the employer may choose to work up to 10 hour straight time weekdays.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - A-D** | **Laborer** | **05/10/2024** |

**Classification Description:** Furnance battery heater tender, burning bar & oxy-acetylene gun

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $50.67 | $65.33 | $79.99 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $65.33 |
| 10th hour | $65.33 |
| Beyond 10 hours | $65.33 |
| **Saturday** | |
| First 8 hours | $65.33 |
| 9th hour | $65.33 |
| 10th hour | $65.33 |
| Beyond 10 hours | $65.33 |
| **Sunday/Holiday** | $79.99 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Saturday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - A-E** | **Laborer** | **05/10/2024** |

**Classification Description:** Cleaner/sweeper laborer, furniture laborer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $44.65 | $56.30 | $67.95 |

### Overtime Provisions

| Over 8-hour day/40-hour week | |
|---|---|
| 9th hour | $56.30 |
| 10th hour | $56.30 |
| Beyond 10 hours | $56.30 |
| **Saturday** | |
| First 8 hours | $56.30 |
| 9th hour | $56.30 |
| 10th hour | $56.30 |
| Beyond 10 hours | $56.30 |
| **Sunday/Holiday** | $67.95 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Saturday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - A-F** | **Laborer** | **05/10/2024** |

**Classification Description:** Expediter man, topman and/or bottom man (blast furnace work or battery work)

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $51.51 | $66.69 | $81.87 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $66.59 |
| 10th hour | $66.59 |
| Beyond 10 hours | $66.59 |
| **Saturday** | |
| First 8 hours | $66.59 |
| 9th hour | $66.59 |
| 10th hour | $66.59 |
| Beyond 10 hours | $66.59 |
| **Sunday/Holiday** | $81.67 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - A-W** | **Laborer** | **05/10/2024** |

**Classification Description:** Laborer -Wall and ceiling material handler, plasterer tender, mortar mixer and plastering machine operator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $46.90 | $59.78 | $72.65 |
| Apprentice: 0-1,000 Hours | $40.46 | $55.20 | $69.93 |
| Apprentice: 1,001-2,000 Hours | $41.75 | $57.13 | $72.50 |
| Apprentice: 2,001-3,000 Hours | $43.04 | $59.06 | $75.08 |
| Apprentice: 3,001-4,000 Hours | $45.61 | $62.92 | $80.23 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $59.78 |
| 10th hour | $59.78 |
| Beyond 10 hours | $59.78 |
| **Saturday** | |
| First 8 hours | $59.78 |
| 9th hour | $59.78 |
| 10th hour | $59.78 |
| Beyond 10 hours | $59.78 |
| **Sunday/Holiday** | $72.65 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Saturday make up day due to conditions beyond control or holiday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Class 1 - RZ1** | **Laborer** | **06/20/2024** |

**Classification Description:** Laborer Road Class 1: Asphalt Shoveler or loader, asphalt plant misc., asphalt raker tender, burlap man, carpenters' tender, yard man, guard rail builder's tender, Earth Retention barrier and wall and M.S.E. Wall installers Tender, Highway and median barrier installers tender (including sound, retaining and crash barriers), fence erector's tender, dumper (wagon, Truck, etc.), joint filling labor, misc., unskilled labor, sprinkler labor, form setting labor, form stripper, pavement reinforcing, handling and placing (e.g., wire mesh, steel mats, dowel bars, etc.), mason's or bricklayer's tender on manholes, manhole builder, headwalls, etc., waterproofing, (other than buildings) seal coating and slurry mix, shoring, underpinning, bridge painting, etc., (spray, roller and brush), sandblasting, 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 Man, and railroad track and trestle laborer, sign installer and remote control operated equipment.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $47.82 | $62.33 | $76.83 |
| Apprentice: 0-1,000 hours | $41.33 | $52.21 | $63.09 |
| Apprentice: 1,001-2,000 hours | $42.78 | $54.39 | $65.99 |
| Apprentice: 2,001-3,000 | $44.23 | $56.56 | $68.89 |
| Apprentice: 3,001-4,000 hours | $47.13 | $60.91 | $74.69 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $62.33 |
| 10th hour | $62.33 |
| Beyond 10 hours | $62.33 |
| **Saturday** | |
| First 8 hours | $62.33 |
| 9th hour | $62.33 |
| 10th hour | $62.33 |
| Beyond 10 hours | $62.33 |
| **Sunday/Holiday** | $76.83 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Class 2 - RZ1** | **Laborer** | **06/20/2024** |

**Classification Description:** Laborer Road Class 2: Mixer operator, (less than 5 sacks), air or electric tool operator (jack hammer, etc.), spreader, boxman (asphalt, stone, gravel, etc.), concrete paddler, power chain saw operator, paving batch truck dumper, tunnel mucker (highway work only), concrete saw operator (under 40 hp), dry pack machine, and roto-mill grounds person.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $48.07 | $62.64 | $77.21 |
| Apprentice: 0-1,000 hours | $41.43 | $52.36 | $63.29 |
| Apprentice: 1,001-2,000 hours | $42.88 | $54.54 | $66.19 |
| Apprentice: 2,001-3,000 hours | $44.34 | $56.73 | $69.11 |
| Apprentice: 3,001-4,000 hours | $47.25 | $61.09 | $74.93 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $62.64 |
| 10th hour | $62.64 |
| Beyond 10 hours | $62.64 |
| **Saturday** | |
| First 8 hours | $62.64 |
| 9th hour | $62.64 |
| 10th hour | $62.64 |
| Beyond 10 hours | $62.64 |
| **Sunday/Holiday** | $77.21 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Class 3 - RZ1** | **Laborer** | **06/20/2024** |

**Classification Description:** Laborer Road Class 3: Tunnel miner (highway work only), finishers tenders, guard rail builder, highway and median barrier installer, Earth Retention Barrier and wall and M.S.E. wall installer (including sound, retaining and crash barriers), fence erector, bottom man, powder man, wagon drill, and air track operator, curb and side rail setter's tender, diamond and core drills (per agreement between the Laborers and Operating Engineers International Union dated February 3, 1954), grade checker and certified welder.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $48.25 | $62.91 | $77.57 |
| Apprentice: 0-1,000 hours | $41.56 | $52.55 | $63.55 |
| Apprentice: 1,001-2,000 hours | $43.03 | $54.76 | $66.49 |
| Apprentice: 2,001-3,000 hours | $44.49 | $56.95 | $69.41 |
| Apprentice: 3,001-4,000 hours | $47.42 | $61.35 | $75.27 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $62.91 |
| 10th hour | $62.91 |
| Beyond 10 hours | $62.91 |
| **Saturday** | |
| First 8 hours | $62.91 |
| 9th hour | $62.91 |
| 10th hour | $62.91 |
| Beyond 10 hours | $62.91 |
| **Sunday/Holiday** | $77.57 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Class 4 - RZ1** | **Laborer** | **05/10/2024** |

**Classification Description:** Laborer Road Class 4: asphalt raker

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $48.33 | $62.53 | $77.23 |
| Apprentice: 0-1,000 hours | $41.62 | $52.15 | $63.17 |
| Apprentice: 1,001-2,000 hours | $43.09 | $54.35 | $66.11 |
| Apprentice: 2,001-3,000 hours | $44.56 | $56.55 | $69.05 |
| Apprentice: 3,001-4,000 hours | $47.50 | $60.97 | $74.93 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $63.03 |
| 10th hour | $63.03 |
| Beyond 10 hours | $63.03 |
| **Saturday** | |
| First 8 hours | $63.03 |
| 9th hour | $63.03 |
| 10th hour | $63.03 |
| Beyond 10 hours | $63.03 |
| **Sunday/Holiday** | $77.73 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Class 5 - RZ1** | **Laborer** | **05/10/2024** |

**Classification Description:** Laborer Road Class 5: pipe layers, oxy-gun

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $48.54 | $63.35 | $78.15 |
| Apprentice: 0-1,000 hours | $41.78 | $52.89 | $63.99 |
| Apprentice: 1,001-2,000 hours | $43.26 | $55.11 | $66.95 |
| Apprentice: 2,001-3,000 hours | $44.74 | $57.33 | $69.91 |
| Apprentice: 3,001-4,000 hours | $47.70 | $61.77 | $75.83 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $63.34 |
| 10th hour | $63.34 |
| Beyond 10 hours | $63.34 |
| **Saturday** | |
| First 8 hours | $63.34 |
| 9th hour | $63.34 |
| 10th hour | $63.34 |
| Beyond 10 hours | $63.34 |
| **Sunday/Holiday** | $78.15 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Class 6 - RZ1** | **Laborer** | **05/10/2024** |

**Classification Description:** Laborer Road Class 6:  line form setter for curb or pavement, asphalt screed checker/screw man on asphalt paving machines

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $48.84 | $63.80 | $78.75 |
| Apprentice: 0-1,000 hours | $42.00 | $53.22 | $64.43 |
| Apprentice: 1,001-2,000 hours | $43.50 | $55.47 | $67.43 |
| Apprentice: 2,001-3,000 hours | $44.99 | $57.70 | $70.41 |
| Apprentice: 3,001-4,000 hours | $47.98 | $62.19 | $76.39 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $63.80 |
| 10th hour | $63.80 |
| Beyond 10 hours | $63.80 |
| **Saturday** | |
| First 8 hours | $63.80 |
| 9th hour | $63.80 |
| 10th hour | $63.80 |
| Beyond 10 hours | $63.80 |
| **Sunday/Holiday** | $78.75 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Class 7 - RZ1** | **Laborer** | **06/20/2024** |

**Classification Description:** Laborer Road Class 7: Concrete Specialist - The Classification of Concrete Specialist shall include the finishing and troweling, of cast in place or precast concrete by any and all methods. Laborers who have the necessary skills to be classified as a Concrete Specialist and perform the work shall be paid the following wage and fringe benefit scale.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $49.91 | $65.40 | $80.89 |
| Apprentice: 0-1,000 hours | $42.80 | $54.42 | $66.03 |
| Apprentice: 1,001-2,000 hours | $44.35 | $56.74 | $69.13 |
| Apprentice: 2,001-3,000 hours | $45.90 | $59.06 | $72.23 |
| Apprentice: 3,001-4,000 hours | $47.78 | $64.72 | $81.66 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $65.40 |
| 10th hour | $65.40 |
| Beyond 10 hours | $65.40 |
| **Saturday** | |
| First 8 hours | $65.40 |
| 9th hour | $65.40 |
| 10th hour | $65.40 |
| Beyond 10 hours | $65.40 |
| **Sunday/Holiday** | $80.89 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Hazardous - Class A - Z1** | **Laborer - Hazardous** | **05/10/2024** |

**Classification Description:** Class A performing work in conjunction with site preparation and other preliminary work prior to actual removal, handling, or containment of hazardous waste substances not requiring use of personal protective equipment required by state or federal regulat

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $46.90 | $64.85 | $82.80 |
| Apprentice: 0-1,000 work hours | $40.46 | $55.19 | $69.92 |
| Apprentice: 1,001-2,000 work hours | $41.75 | $57.13 | $72.50 |
| Apprentice: 2,001-3,000 work hours | $43.04 | $59.07 | $75.08 |
| Apprentice: 3,001-4,000 work hours | $45.61 | $62.92 | $80.22 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $59.78 |
| 10th hour | $59.78 |
| Beyond 10 hours | $59.78 |
| **Saturday** | |
| First 8 hours | $59.78 |
| 9th hour | $59.78 |
| 10th hour | $59.78 |
| Beyond 10 hours | $59.78 |
| **Sunday/Holiday** | $72.65 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th or T-F; inclement weather makeup day Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Hazardous - Class B - Z1** | **Laborer - Hazardous** | **05/10/2024** |

**Classification Description:** Class B performing work in conjunction with the removal, handling, or containment of hazardous waste substances when the use of personal protective equipment levels "A", "B" or "C" is required.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $47.90 | $66.35 | $84.80 |
| Apprentice: 0-1,000 work hours | $41.21 | $56.32 | $71.42 |
| Apprentice: 1,001-2,000 work hours | $42.55 | $58.33 | $74.10 |
| Apprentice: 2,001-3,000 work hours | $43.89 | $60.34 | $76.78 |
| Apprentice: 3,001-4,000 work hours | $46.56 | $64.35 | $82.12 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $61.28 |
| 10th hour | $61.28 |
| Beyond 10 hours | $61.28 |
| **Saturday** | |
| First 8 hours | $61.28 |
| 9th hour | $61.28 |
| 10th hour | $61.28 |
| Beyond 10 hours | $61.28 |
| **Sunday/Holiday** | $74.65 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th or T-F; inclement weather makeup day Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class A** | **Laborer - Landscape** | **08/02/2024** |

**Classification Description:** Irrigation Foremen and Construction Foremen. Skilled Landscape Operator includes air, gas and diesel equipment operators, lawn sprinkler installers, skid steer/track loaders, mini excavators, off-road dump vehicle, articulated haulers, hydroseeder, backhoe loaders, wheel loaders, excavators, ride and walk-behind trenchers and telescope handlers.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $37.22 | $50.00 | $62.78 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $37.22 |
| 10th hour | $37.22 |
| Beyond 10 hours | $37.22 |
| **Saturday** | |
| First 8 hours | $37.22 |
| 9th hour | $37.22 |
| 10th hour | $37.22 |
| Beyond 10 hours | $37.22 |
| **Sunday/Holiday** | $37.22 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class B** | **Laborer - Landscape** | **08/02/2024** |

**Classification Description:** Skilled Landscape Laborer includes small power tool operator, lawn sprinkler installers' tender, irrigation installers' tender and material mover.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $35.00 | $48.17 | $61.34 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $35.00 |
| 10th hour | $35.00 |
| Beyond 10 hours | $35.00 |
| **Saturday** | |
| First 8 hours | $35.00 |
| 9th hour | $35.00 |
| 10th hour | $35.00 |
| Beyond 10 hours | $35.00 |
| **Sunday/Holiday** | $35.00 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class D** | **Laborer - Landscape** | **08/02/2024** |

**Classification Description:** Inexperienced Landscape Laborer is defined as an individual who has not worked ninety (90) calendar days under the terms and conditions of this or a similar collective bargaining agreement. An Inexperienced Laborer may be employed by the Contractor Foreman. The ratio may be utilized by the Contractor on a company-wide basis or a project basis. The ratio may be modified by mutual agreement of the Local Union having jurisdiction and the Contractor. The Local Union having jurisdiction on the project shall have first opportunity to refer new employees. See Article 3, Section 3.6.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $21.74 | $32.61 | $43.48 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $21.74 |
| 10th hour | $21.74 |
| Beyond 10 hours | $21.74 |
| **Saturday** | |
| First 8 hours | $21.74 |
| 9th hour | $21.74 |
| 10th hour | $21.74 |
| Beyond 10 hours | $21.74 |
| **Sunday/Holiday** | $21.74 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Landscape - Class B1 - Z1** | **Laborer - Landscape** | **05/10/2024** |

**Classification Description:** Class B1: Landscape Operator includes air, gas, and diesel equipment operator, lawn sprinkler installer,skidsteer, mini excavators, backhoe loaders, ride and walk behind trenchers, off road dump vehicle, articulated haulers, hydroseeder, wheel loaders

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $32.40 | $42.43 | $52.95 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $42.93 |
| 10th hour | $42.93 |
| Beyond 10 hours | $42.93 |
| **Saturday** | |
| First 8 hours | $42.93 |
| 9th hour | $42.93 |
| 10th hour | $42.93 |
| Beyond 10 hours | $42.93 |
| **Sunday/Holiday** | $53.45 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Landscape - Class B1 - Z1** | **Laborer - Landscape** | **05/10/2024** |

**Classification Description:** Class B1: Landscape Operator includes air, gas, and diesel equipment operator, lawn sprinkler installer,skidsteer, mini excavators, backhoe loaders, ride and walk behind trenchers, off road dump vehicle, articulated haulers, hydroseeder, wheel loaders

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $34.62 | $46.26 | $57.89 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $11.35 |
| 10th hour | $46.26 |
| Beyond 10 hours | $46.26 |
| **Saturday** | |
| First 8 hours | $46.26 |
| 9th hour | $46.26 |
| 10th hour | $46.26 |
| Beyond 10 hours | $46.26 |
| **Sunday/Holiday** | $57.89 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer - Landscape - Class B2 - Z1** | **Laborer - Landscape** | **05/10/2024** |

**Classification Description:** Class B2: Skilled Landscape Laborer:  small power tool operator, lawn sprinkler installers' tender, irrigation installers' tender, material mover

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $30.40 | $39.93 | $49.45 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $39.93 |
| 10th hour | $39.93 |
| Beyond 10 hours | $39.93 |
| **Saturday** | |
| First 8 hours | $39.93 |
| 9th hour | $39.93 |
| 10th hour | $39.93 |
| Beyond 10 hours | $39.93 |
| **Sunday/Holiday** | $49.45 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer Underground - Tunnel, Shaft & Caisson - Class I - Z1** | **Laborer Underground - Tunnel, Shaft & Caisson** | **05/10/2024** |

**Classification Description:** Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $41.17 | $51.66 | $62.14 |
| Apprentice: 0-1,000 work hours | $34.45 | $43.16 | $51.85 |
| Apprentice: 1,001-2,000 work hours | $36.54 | $46.29 | $56.03 |
| Apprentice: 2,001-3,000 work hours | $37.57 | $47.84 | $58.09 |
| Apprentice: 3,001-4,000 work hours | $39.64 | $50.94 | $62.23 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $51.66 |
| 10th hour | $51.66 |
| Beyond 10 hours | $51.66 |
| **Saturday** | |
| First 8 hours | $51.66 |
| 9th hour | $51.66 |
| 10th hour | $51.66 |
| Beyond 10 hours | $51.66 |
| **Sunday/Holiday** | $62.14 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer Underground - Tunnel, Shaft & Caisson - Class II - Z1** | **Laborer Underground - Tunnel, Shaft & Caisson** | **05/10/2024** |

**Classification Description:** Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $41.28 | $51.82 | $62.36 |
| Apprentice: 0-1,000 work hours | $35.58 | $44.85 | $54.11 |
| Apprentice: 1,001-2,000 work hours | $36.62 | $46.41 | $56.19 |
| Apprentice: 2,001-3,000 work hours | $37.66 | $47.97 | $58.27 |
| Apprentice: 3,001-4,000 work hours | $39.74 | $51.09 | $62.43 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $51.82 |
| 10th hour | $51.82 |
| Beyond 10 hours | $51.82 |
| **Saturday** | |
| First 8 hours | $51.82 |
| 9th hour | $51.82 |
| 10th hour | $51.82 |
| Beyond 10 hours | $51.82 |
| **Sunday/Holiday** | $62.36 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer Underground - Tunnel, Shaft & Caisson - Class III - Z1** | **Laborer Underground - Tunnel, Shaft & Caisson** | **05/10/2024** |

**Classification Description:** Class III - Air tool operator (jack hammer man, bush hammer man and grinding man), first bottom man, second bottom man, cage tender, car pusher, carrier man, concrete man, concrete form man, concrete repair man, cement invert laborer, cement finisher, con

### Wage Rates

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $41.34 | $51.91 | $62.48 |
| Apprentice: 0-1,000 work hours | $35.63 | $44.92 | $54.21 |
| Apprentice: 1,001-2,000 work hours | $36.67 | $46.48 | $56.29 |
| Apprentice: 2,001-3,000 work hours | $37.71 | $48.04 | $58.37 |
| Apprentice: 3,001-4,000 work hours | $39.80 | $51.18 | $62.55 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $51.91 |
| 10th hour | $51.91 |
| Beyond 10 hours | $51.91 |
| **Saturday** | |
| First 8 hours | $51.91 |
| 9th hour | $51.91 |
| 10th hour | $51.91 |
| Beyond 10 hours | $51.91 |
| **Sunday/Holiday** | $62.48 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer Underground - Tunnel, Shaft & Caisson - Class IV - Z1** | **Laborer Underground - Tunnel, Shaft & Caisson** | **05/10/2024** |

**Classification Description:** Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $41.52 | $52.18 | $62.84 |
| Apprentice: 0-1,000 work hours | $35.76 | $45.12 | $54.47 |
| Apprentice: 1,001-2,000 work hours | $36.82 | $46.71 | $56.59 |
| Apprentice: 2,001-3,000 work hours | $37.87 | $48.28 | $58.69 |
| Apprentice: 3,001-4,000 work hours | $39.97 | $51.44 | $62.89 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $52.18 |
| 10th hour | $52.18 |
| Beyond 10 hours | $52.18 |
| **Saturday** | |
| First 8 hours | $52.18 |
| 9th hour | $52.18 |
| 10th hour | $52.18 |
| Beyond 10 hours | $52.18 |
| **Sunday/Holiday** | $62.84 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer Underground - Tunnel, Shaft & Caisson - Class V - Z1** | **Laborer Underground - Tunnel, Shaft & Caisson** | **05/10/2024** |

**Classification Description:** Class V - Tunnel, shaft and caisson miner, drill runner, keyboard operator, power knife operator, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars)

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $41.77 | $52.56 | $63.34 |
| Apprentice: 0-1,000 work hours | $35.95 | $45.40 | $54.85 |
| Apprentice: 1,001-2,000 work hours | $37.02 | $47.01 | $56.99 |
| Apprentice: 2,001-3,000 work hours | $38.08 | $48.60 | $59.11 |
| Apprentice: 3,001-4,000 work hours | $40.21 | $51.80 | $63.37 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $52.56 |
| 10th hour | $52.56 |
| Beyond 10 hours | $52.56 |
| **Saturday** | |
| First 8 hours | $52.56 |
| 9th hour | $52.56 |
| 10th hour | $52.56 |
| Beyond 10 hours | $52.56 |
| **Sunday/Holiday** | $63.34 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer Underground - Tunnel, Shaft & Caisson - Class VI - Z1** | **Laborer Underground - Tunnel, Shaft & Caisson** | **05/10/2024** |

**Classification Description:** Class VI - Dynamite man and powder man.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $41.90 | $54.33 | $66.75 |
| Apprentice: 0-1,000 work hours | $36.20 | $45.78 | $55.35 |
| Apprentice: 1,001-2,000 work hours | $37.28 | $47.40 | $57.51 |
| Apprentice: 2,001-3,000 work hours | $38.36 | $49.02 | $59.67 |
| Apprentice: 3,001-4,000 work hours | $40.52 | $52.26 | $63.99 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $52.85 |
| 10th hour | $52.85 |
| Beyond 10 hours | $52.85 |
| **Saturday** | |
| First 8 hours | $52.85 |
| 9th hour | $52.85 |
| 10th hour | $52.85 |
| Beyond 10 hours | $52.85 |
| **Sunday/Holiday** | $63.80 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer Underground - Tunnel, Shaft & Caisson - Class VII - Z1** | **Laborer Underground - Tunnel, Shaft & Caisson** | **05/10/2024** |

**Classification Description:** Class VII - Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes and flagstones.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $35.58 | $43.17 | $50.76 |
| Apprentice: 0-1,000 work hours | $31.39 | $38.56 | $45.73 |
| Apprentice: 1,001-2,000 work hours | $32.15 | $39.70 | $47.25 |
| Apprentice: 2,001-3,000 work hours | $32.91 | $40.84 | $48.77 |
| Apprentice: 3,001-4,000 work hours | $34.43 | $43.12 | $51.81 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $43.17 |
| 10th hour | $43.17 |
| Beyond 10 hours | $43.17 |
| **Saturday** | |
| First 8 hours | $43.17 |
| 9th hour | $43.17 |
| 10th hour | $43.17 |
| Beyond 10 hours | $43.17 |
| **Sunday/Holiday** | $50.76 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer -Underground Open Cut - Class I - Z1** | **Laborer -Underground Open Cut, Class I** | **05/10/2024** |

**Classification Description:** Construction Laborer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $36.91 | $47.01 | $57.10 |
| Apprentice: 0-1,000 work hours | $35.39 | $44.56 | $53.73 |
| Apprentice: 1,001-2,000 work hours | $36.42 | $46.11 | $55.79 |
| Apprentice: 2,001-3,000 work hours | $37.44 | $47.64 | $57.83 |
| Apprentice: 3,001-4,000 work hours | $39.49 | $50.72 | $61.93 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $47.01 |
| 10th hour | $47.01 |
| Beyond 10 hours | $47.01 |
| **Saturday** | |
| First 8 hours | $47.01 |
| 9th hour | $47.01 |
| 10th hour | $47.01 |
| Beyond 10 hours | $47.01 |
| **Sunday/Holiday** | $57.10 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer -Underground Open Cut - Class II - Z1** | **Laborer -Underground Open Cut, Class II** | **05/10/2024** |

**Classification Description:** Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $37.05 | $47.22 | $57.38 |
| Apprentice: 0-1,000 work hours | $35.47 | $44.68 | $53.89 |
| Apprentice: 1,001-2,000 work hours | $36.50 | $46.23 | $55.95 |
| Apprentice: 2,001-3,000 work hours | $37.54 | $47.79 | $58.03 |
| Apprentice: 3,001-4,000 work hours | $39.60 | $50.88 | $62.15 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $47.22 |
| 10th hour | $47.22 |
| Beyond 10 hours | $47.22 |
| **Saturday** | |
| First 8 hours | $47.22 |
| 9th hour | $47.22 |
| 10th hour | $47.22 |
| Beyond 10 hours | $47.22 |
| **Sunday/Holiday** | $57.38 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer -Underground Open Cut - Class III - Z1** | **Laborer -Underground Open Cut, Class III** | **05/10/2024** |

**Classification Description:** Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon

### Wage Rates

| | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $40.68 | $52.50 | $64.31 |
| Apprentice: 0-1,000 work hours | $35.51 | $44.74 | $53.97 |
| Apprentice: 1,001-2,000 work hours | $36.54 | $46.29 | $56.03 |
| Apprentice: 2,001-3,000 work hours | $37.58 | $47.85 | $58.11 |
| Apprentice: 3,001-4,000 work hours | $39.65 | $50.96 | $62.25 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $51.02 |
| 10th hour | $51.02 |
| Beyond 10 hours | $51.02 |
| **Saturday** | |
| First 8 hours | $51.02 |
| 9th hour | $51.02 |
| 10th hour | $51.02 |
| Beyond 10 hours | $51.02 |
| **Sunday/Holiday** | $61.36 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer -Underground Open Cut - Class IV - Z1** | **Laborer -Underground Open Cut, Class IV** | **05/10/2024** |

**Classification Description:** Trench or excavating grade man.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $40.76 | $52.62 | $64.47 |
| Apprentice: 0-1,000 work hours | $35.57 | $44.84 | $54.09 |
| Apprentice: 1,001-2,000 work hours | $36.61 | $46.40 | $56.17 |
| Apprentice: 2,001-3,000 work hours | $37.65 | $47.96 | $58.25 |
| Apprentice: 3,001-4,000 work hours | $39.72 | $51.06 | $62.39 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $51.14 |
| 10th hour | $51.14 |
| Beyond 10 hours | $51.14 |
| **Saturday** | |
| First 8 hours | $51.14 |
| 9th hour | $51.14 |
| 10th hour | $51.14 |
| Beyond 10 hours | $51.14 |
| **Sunday/Holiday** | $61.52 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer -Underground Open Cut - Class V - Z1** | **Laborer -Underground Open Cut, Class V** | **05/10/2024** |

**Classification Description:** Pipe Layer (including crock, metal pipe, mulitplate or other conduits)

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $40.82 | $52.71 | $64.59 |
| Apprentice: 0-1,000 work hours | $35.62 | $44.91 | $54.19 |
| Apprentice: 1,001-2,000 work hours | $36.66 | $46.47 | $56.27 |
| Apprentice: 2,001-3,000 work hours | $37.70 | $48.03 | $58.35 |
| Apprentice: 3,001-4,000 work hours | $39.78 | $51.15 | $62.51 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $51.23 |
| 10th hour | $51.23 |
| Beyond 10 hours | $51.23 |
| **Saturday** | |
| First 8 hours | $51.23 |
| 9th hour | $51.23 |
| 10th hour | $51.23 |
| Beyond 10 hours | $51.23 |
| **Sunday/Holiday** | $61.64 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer -Underground Open Cut - Class VI - Z1** | **Laborer -Underground Open Cut, Class VI** | **05/10/2024** |

**Classification Description:** Grouting man, top man assistant, 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 appurtenan

### Wage Rates

| | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $38.27 | $48.88 | $59.49 |
| Apprentice: 0-1,000 work hours | $33.70 | $42.03 | $50.35 |
| Apprentice: 1,001-2,000 work hours | $34.62 | $43.41 | $52.19 |
| Apprentice: 2,001-3,000 work hours | $35.53 | $44.78 | $54.01 |
| Apprentice: 3,001-4,000 work hours | $37.36 | $47.52 | $57.67 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $47.41 |
| 10th hour | $47.41 |
| Beyond 10 hours | $47.41 |
| **Saturday** | |
| First 8 hours | $47.41 |
| 9th hour | $47.41 |
| 10th hour | $47.41 |
| Beyond 10 hours | $47.41 |
| **Sunday/Holiday** | $56.54 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Laborer -Underground Open Cut - Class VII - Z1** | **Laborer -Underground Open Cut, Class VII** | **05/10/2024** |

**Classification Description:** Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $34.89 | $43.81 | $52.73 |
| Apprentice: 0-1,000 work hours | $31.17 | $38.24 | $45.29 |
| Apprentice: 1,001-2,000 work hours | $31.91 | $39.34 | $46.77 |
| Apprentice: 2,001-3,000 work hours | $32.66 | $40.47 | $48.27 |
| Apprentice: 3,001-4,000 work hours | $34.15 | $42.70 | $51.25 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $42.34 |
| 10th hour | $42.34 |
| Beyond 10 hours | $42.34 |
| **Saturday** | |
| First 8 hours | $42.34 |
| 9th hour | $42.34 |
| 10th hour | $42.34 |
| Beyond 10 hours | $42.34 |
| **Sunday/Holiday** | $49.78 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class I** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Class I - diver/wet tender, engineer, blaster, leverman

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $82.82 | $107.82 | $132.82 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $32.82 |
| 10th hour | $107.82 |
| Beyond 10 hours | $107.82 |
| **Saturday** | |
| First 8 hours | $107.82 |
| 9th hour | $107.82 |
| 10th hour | $107.82 |
| Beyond 10 hours | $107.82 |
| **Sunday/Holiday** | $132.82 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class II (A)** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Class II (A) - Crane/backhoe operator, material handler, all self-propelled drill rigs, mechanic/welder, hydraulic dredge, diver tender

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $81.32 | $105.57 | $129.82 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $32.82 |
| 10th hour | $105.57 |
| Beyond 10 hours | $105.57 |
| **Saturday** | |
| First 8 hours | $105.57 |
| 9th hour | $105.57 |
| 10th hour | $105.57 |
| Beyond 10 hours | $105.57 |
| **Sunday/Holiday** | $129.82 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class II (B)** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Class II (B) - friction, lattice boom, tug or tug boat operator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $84.32 | $110.07 | $135.82 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $110.07 |
| 10th hour | $110.07 |
| Beyond 10 hours | $110.07 |
| **Saturday** | |
| First 8 hours | $110.07 |
| 9th hour | $110.07 |
| 10th hour | $110.07 |
| Beyond 10 hours | $110.07 |
| **Sunday/Holiday** | $135.82 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class III** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Class III - Deck equip. operator, maintenance of crane or excavator, tug/launch operator, loader/dozer on barge/deck machinery, truck-able tug, lead surveyor, ROV operator, AB deckhand, welder

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $76.82 | $98.82 | $120.82 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $98.82 |
| 10th hour | $98.82 |
| Beyond 10 hours | $98.82 |
| **Saturday** | |
| First 8 hours | $98.82 |
| 9th hour | $98.82 |
| 10th hour | $98.82 |
| Beyond 10 hours | $98.82 |
| **Sunday/Holiday** | $120.82 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Class IV** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Class IV - Deck equipment operator, machineryman/fireman, off road trucks, deck hand, tug engineer, assistant tug operator, blaster helper, deck hand, jet machine, subsea plow, trencher, tug engineer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $72.32 | $92.07 | $111.82 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $32.82 |
| 10th hour | $92.07 |
| Beyond 10 hours | $92.07 |
| **Saturday** | |
| First 8 hours | $92.07 |
| 9th hour | $92.07 |
| 10th hour | $92.07 |
| Beyond 10 hours | $92.07 |
| **Sunday/Holiday** | $111.82 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Extended Boom Forklift Operator - Over 5,000** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $41.43 | $54.43 | $67.42 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $54.43 |
| 10th hour | $54.43 |
| Beyond 10 hours | $67.42 |
| **Saturday** | |
| First 8 hours | $54.43 |
| 9th hour | $54.43 |
| 10th hour | $54.43 |
| Beyond 10 hours | $67.42 |
| **Sunday/Holiday** | $67.42 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Extended Boom Forklift Operator - Over 5,000** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $58.82 | $73.32 | $87.81 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $73.32 |
| 10th hour | $73.32 |
| Beyond 10 hours | $87.81 |
| **Saturday** | |
| First 8 hours | $73.32 |
| 9th hour | $73.32 |
| 10th hour | $73.32 |
| Beyond 10 hours | $87.81 |
| **Sunday/Holiday** | $87.81 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Extended Boom Forklift Operator - Over 5,000** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $64.70 | $81.75 | $98.80 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $81.75 |
| 10th hour | $81.75 |
| Beyond 10 hours | $98.80 |
| **Saturday** | |
| First 8 hours | $81.75 |
| 9th hour | $81.75 |
| 10th hour | $81.75 |
| Beyond 10 hours | $98.80 |
| **Sunday/Holiday** | $98.80 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Extended Boom Forklift Operator - Over 5,000** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $69.61 | $88.88 | $108.15 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $88.88 |
| 10th hour | $88.88 |
| Beyond 10 hours | $108.15 |
| **Saturday** | |
| First 8 hours | $88.88 |
| 9th hour | $88.88 |
| 10th hour | $88.88 |
| Beyond 10 hours | $108.15 |
| **Sunday/Holiday** | $108.15 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Extended Boom Forklift Operator - Over 5,000** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Extended boom forklift/forktruck over 5,000lb capacity, 1 drum hoist

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $63.29 | $79.73 | $96.16 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $79.73 |
| 10th hour | $79.73 |
| Beyond 10 hours | $96.16 |
| **Saturday** | |
| First 8 hours | $79.73 |
| 9th hour | $79.73 |
| 10th hour | $79.73 |
| Beyond 10 hours | $96.16 |
| **Sunday/Holiday** | $96.16 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Fireman or Oiler** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Fireman or Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $59.08 | $75.85 | $92.62 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $59.08 |
| 10th hour | $59.08 |
| Beyond 10 hours | $88.24 |
| **Saturday** | |
| First 8 hours | $59.08 |
| 9th hour | $88.24 |
| 10th hour | $88.24 |
| Beyond 10 hours | $88.24 |
| **Sunday/Holiday** | $88.24 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Journeyman - Class I** | **Operating Engineer** | **05/17/2024** |

**Classification Description:** Journeyman - Class I
Asphalt Transfer Machine (Shuttle Buggy)
Concrete/Asphalt Pavers
Excavators Installing Utilities over 20 feet in depth
GPS or Electronic Grade Equipment (employee must be able to set up and use it on machine themselves, and employee can install it and calibrate it on their own)
Hydraulic/Lattice Lifting Cranes over 25 tons
Mechanic
**On bridge construction projects when a Class I Crane Operator is erecting structural components as part of a composite crew with Structural Ironworkers, the Base Rate and Vacation and Holiday pay shall be at the Crane Operator rate as set forth in the current agreement between the Union and the Great Lakes Fabricators and Erectors Association.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $69.17 | $88.16 | $107.14 |
| Apprentice: Apprentice Engineer 0-6 months | $56.03 | $71.32 | $86.60 |
| Apprentice: Apprentice Engineer 13-18 | $60.40 | $77.87 | $95.34 |
| Apprentice: Apprentice Engineer 19-24 months | $62.21 | $80.59 | $98.96 |
| Apprentice: Apprentice Engineer 25-30 months | $64.76 | $84.42 | $104.06 |
| Apprentice: Apprentice Engineer 31-36 months | $67.08 | $87.90 | $108.70 |
| Apprentice: Apprentice Engineer 7-12 months | $58.21 | $74.58 | $90.96 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $88.16 |
| 10th hour | $88.16 |
| Beyond 10 hours | $88.16 |
| **Saturday** | |
| First 8 hours | $88.16 |
| 9th hour | $88.16 |
| 10th hour | $88.16 |
| Beyond 10 hours | $88.16 |
| **Sunday/Holiday** | $107.14 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

In the event work is unable to be performed on account of weather, Monday through Thursday, the Friday work may be scheduled for ten (10) hours, at straight time, as a make-up day.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Journeyman - Class II** | **Operating Engineer** | **05/17/2024** |

**Classification Description:** Journeyman - Class II
Air Compressors in Manifold with throttle valve +750 cfm
Asphalt Bituminous Compactor / Roller
Asphalt Planner self-propelled
Asphalt Plant on project including operating from on site or operating remotely
Asphalt Screed or Screw (per Employer Past Practice)
Auto Grade or similar type machine
Backhoe on Farm Type Tractor 45 H.P. & over
Ballast Jack Tamper
Ballast Regulator (R.R.)
Batch Plant (concrete-central mix)
Bituminous Paver (self-propelled)
Blade Grader
Bull Dozer
Caisson Drilling Machine
Cherry Picker – 15 ton or over
Chip Spreader
Concrete Batch or Drum Mix Plant on project including operating from on site or operating remotely
Concrete Belt Placer (Formless)
Concrete Cure / Finish Machine (burlap, tinning or grooving)
Concrete Mixer 21 cu. Ft. Or over
Concrete Pump (Truck Mount)
Concrete Pump (3 inch and over)
Concrete / Asphalt Saw Power Driven (3 yrs experience or more)
Conveyor Loader (Euclid type)
Core Drilling Machine
Curb-Barrier Wall Machine CMI type
Directional Drill / Boring Machine
Dredge Engineer
Dredge
Drilling Machine on which the drill is an integral part
Earth Mover – rubber tired – (paddle wheel, Cat 619, 631, TS-24 or similar type)
Earth Mover rubber tired-tandem

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $68.02 | $86.51 | $104.99 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $86.50 |
| 10th hour | $86.50 |
| Beyond 10 hours | $86.50 |
| **Saturday** | |
| First 8 hours | $86.50 |
| 9th hour | $86.50 |
| 10th hour | $86.50 |
| Beyond 10 hours | $86.50 |
| **Sunday/Holiday** | $104.99 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Journeyman - Class III** | **Operating Engineer** | **05/17/2024** |

**Classification Description:** Journeyman - Class III
Air Compressor with Throttle Valve or Clever Brooks type comb.
Backhoe less than 1 cyd. Including Farm Type
Bituminous Plant Engineer
Chemical / Grout Machine 21 cft. Or larger
Cherry Picker under 15 ton
Chip Spreader (self-propelled)
Crusher
Concrete Barrier Moving Machine (per Employer Past Practice)
Concrete Pump
Concrete Spreader--Power Driven
End Loader under 1-1/2 cu yd.
Grease Truck
Gunite Machine
Lowboy (per Employer Past Practice)
Mesh or Steel Placer (motorized)
Multiple Tamping Machine (R.R.)
Refrigerating Machine--Freezing operation
Roller-Waterbound Macadam, Bituminous Macadam, Brick
Ross Carrier
Self-propelled convey transfer devise.
Side Boom Tractor (smaller than D-4 type or equivalent)
Sweeper (Wayne type and similar equipment)
Macadam, Brick Surface
Trench Machine 24" and under
Tube Float (motorized)

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $61.29 | $76.85 | $92.41 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $30.17 |
| 10th hour | $76.85 |
| Beyond 10 hours | $76.85 |
| **Saturday** | |
| First 8 hours | $76.85 |
| 9th hour | $76.85 |
| 10th hour | $76.85 |
| Beyond 10 hours | $76.85 |
| **Sunday/Holiday** | $92.41 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Journeyman - Class IV** | **Operating Engineer** | **05/17/2024** |

**Classification Description:** Journeyman - Class IV
Air Compressor
All mulching equipment
All Walk Behind or Remote Control Powered Equipment (autonomous equipment)
Assistant to Engineer Automatic Dry Batch Plant Belt Spreader (motorized including transfer device by remote, wireless or cable)
Bituminous Distributor
Bituminous Patching Machine
Broom & Belt Machine
Chair Cart (self-propelled)
Concrete Pumps (under 3")
Concrete Breaker
Curb Machine
Curing Equipment (self-propelled)
Deck Hand
Digger Post Hole (power-driven)
Dump Truck
End Dumps (per Employer Past Practice)
End Loader (under ¾ yard capacity)
Farm Tractor-incl. farm tractor with all attachments except backhoe and incl. highlift end loaders of 1 cu. Yard capacity or less
Fireman (on boiler)
Fork Lift – under 10 ton
Form Grader (if motorized)
Georgia Buggy – Power wheel barrel ¾ yard with a seat
Generator (15 kw or greater)
Greaser Helper
Guard Post Driver (power driven)

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $60.73 | $76.05 | $91.36 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $76.05 |
| 10th hour | $76.05 |
| Beyond 10 hours | $76.05 |
| **Saturday** | |
| First 8 hours | $76.05 |
| 9th hour | $76.05 |
| 10th hour | $76.05 |
| Beyond 10 hours | $76.05 |
| **Sunday/Holiday** | $91.36 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Journeyman - Class V** | **Operating Engineer** | **05/17/2024** |

**Classification Description:** Journeyman - Class V
Concrete/Asphalt Saw - Power Driven (Less than 3 yrs. experience)
Density/Soil Engineer
Directional Boring Utility Man
Discharge Pumps 4" or less (1-4 units)
Dumper (Wagon, Truck, Etc.)-½ yard or less
Fence Erector/Power Driven
Light Plants (1 to 5 units)
Paving Batch Truck Dumper
Roto Mill Utility Grade Control
Sign Installer/Sign Installer with Remote Control Operated Equipment
Top Man, And Railroad Track and Trestle Engineer
Utility Engineer
Water Blasting Utility Engineer
1 to 4 pcs. of minor equip.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $42.35 | $55.33 | $68.31 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $55.33 |
| 10th hour | $55.33 |
| Beyond 10 hours | $55.33 |
| **Saturday** | |
| First 8 hours | $55.33 |
| 9th hour | $55.33 |
| 10th hour | $55.33 |
| Beyond 10 hours | $55.33 |
| **Sunday/Holiday** | $68.31 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 A140** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Crane with boom & jib or leads 140' or longer

Work in excess of 12 per day M-F shall be paid at double time.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $77.59 | $100.24 | $122.89 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $100.24 |
| 10th hour | $100.24 |
| Beyond 10 hours | $100.24 |
| **Saturday** | |
| First 8 hours | $100.24 |
| 9th hour | $100.24 |
| 10th hour | $100.24 |
| Beyond 10 hours | $100.24 |
| **Sunday/Holiday** | $122.89 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 A220** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Crane with boom & jib or leads 220' or longer
Work in excess of 12 per day M-F shall be paid at double time.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $77.86 | $100.63 | $123.40 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $100.63 |
| 10th hour | $100.63 |
| Beyond 10 hours | $100.63 |
| **Saturday** | |
| First 8 hours | $100.63 |
| 9th hour | $100.63 |
| 10th hour | $100.63 |
| Beyond 10 hours | $100.63 |
| **Sunday/Holiday** | $123.40 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 B120** | **Operating Engineer** | **06/20/2024** |

**Classification Description:** Crane Operator w/120' of Boom or Longer w/Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $77.41 | $99.99 | $122.56 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $99.98 |
| 10th hour | $99.98 |
| Beyond 10 hours | $99.98 |
| **Saturday** | |
| First 8 hours | $99.98 |
| 9th hour | $99.98 |
| 10th hour | $99.98 |
| Beyond 10 hours | $99.98 |
| **Sunday/Holiday** | $122.56 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 GM** | **Operating Engineer** | **06/20/2024** |

**Classification Description:** Ground Man/Light Plants/Welder/Pumps Under 6"

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $43.83 | $57.87 | $71.91 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $57.87 |
| 10th hour | $57.87 |
| Beyond 10 hours | $57.87 |
| **Saturday** | |
| First 8 hours | $57.87 |
| 9th hour | $57.87 |
| 10th hour | $57.87 |
| Beyond 10 hours | $57.87 |
| **Sunday/Holiday** | $71.91 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - Below 5,000lb Capacity** | **Operating Engineer** | **06/20/2024** |

**Classification Description:** Ind. forklift/forktruck under 5,000lb capacity power jacks/power packs, composite crew only

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.10 | $85.19 | $103.28 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $85.19 |
| 10th hour | $85.19 |
| Beyond 10 hours | $85.19 |
| **Saturday** | |
| First 8 hours | $85.19 |
| 9th hour | $85.19 |
| 10th hour | $85.19 |
| Beyond 10 hours | $85.19 |
| **Sunday/Holiday** | $103.28 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - Crane Operator w/Oiler** | **Operating Engineer** | **06/20/2024** |

**Classification Description:** Crane Operator w/Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $77.05 | $99.47 | $121.89 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $99.47 |
| 10th hour | $99.47 |
| Beyond 10 hours | $99.47 |
| **Saturday** | |
| First 8 hours | $99.47 |
| 9th hour | $99.47 |
| 10th hour | $99.47 |
| Beyond 10 hours | $99.47 |
| **Sunday/Holiday** | $121.89 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - Crane, TDH, Excavator** | **Operating Engineer** | **06/20/2024** |

**Classification Description:** Crane Operator, Job Mechanic, Three Drum Hoist and Excavator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $76.05 | $98.04 | $120.02 |
| Apprentice: Apprentice Engineer 0-6 months | $60.84 | $78.54 | $96.24 |
| Apprentice: Apprentice Engineer 13-18 months | $65.90 | $86.13 | $106.36 |
| Apprentice: Apprentice Engineer 19-24 months | $68.42 | $89.92 | $111.40 |
| Apprentice: Apprentice Engineer 25-30 months | $70.95 | $93.71 | $116.46 |
| Apprentice: Apprentice Engineer 31-36 months | $73.48 | $97.50 | $121.52 |
| Apprentice: Apprentice Engineer 7-12 months | $63.40 | $82.38 | $101.36 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $98.03 |
| 10th hour | $98.03 |
| Beyond 10 hours | $98.03 |
| **Saturday** | |
| First 8 hours | $98.03 |
| 9th hour | $98.03 |
| 10th hour | $98.03 |
| Beyond 10 hours | $98.03 |
| **Sunday/Holiday** | $120.02 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - CW** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Compressor or welding machine
Work in excess of 12 per day M-F shall be paid at double time.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $54.86 | $69.72 | $84.58 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $67.78 |
| 10th hour | $67.78 |
| Beyond 10 hours | $67.78 |
| **Saturday** | |
| First 8 hours | $67.78 |
| 9th hour | $80.70 |
| 10th hour | $80.70 |
| Beyond 10 hours | $80.70 |
| **Sunday/Holiday** | $80.70 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - F** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Forklift, lull, extend-a-boom forklift
Work in excess of 12 per day M-F shall be paid at double time.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $63.36 | $79.81 | $96.25 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $79.81 |
| 10th hour | $79.81 |
| Beyond 10 hours | $79.81 |
| **Saturday** | |
| First 8 hours | $79.81 |
| 9th hour | $96.25 |
| 10th hour | $96.25 |
| Beyond 10 hours | $96.25 |
| **Sunday/Holiday** | $96.25 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - FO** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Fireman or oiler
Work in excess of 12 per day M-F shall be paid at double time.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $53.83 | $68.18 | $82.52 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $66.31 |
| 10th hour | $66.31 |
| Beyond 10 hours | $66.31 |
| **Saturday** | |
| First 8 hours | $66.31 |
| 9th hour | $78.78 |
| 10th hour | $78.78 |
| Beyond 10 hours | $78.78 |
| **Sunday/Holiday** | $78.78 |

**Four 10-hour days allowed? -** Yes
**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - FSM** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Forklift or Straight Mast

Four 10 hour days may be scheduled M-Th or T-F. Work not performed due to weather on M-Th may be scheduled on Friday

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $57.50 | $71.40 | $85.29 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $71.40 |
| 10th hour | $71.40 |
| Beyond 10 hours | $71.40 |
| **Saturday** | |
| First 8 hours | $71.40 |
| 9th hour | $85.29 |
| 10th hour | $85.29 |
| Beyond 10 hours | $85.29 |
| **Sunday/Holiday** | $85.29 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - I** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Lull or Extend-a-Boom Forklift

Four 10 hour days may be scheduled M-Th or T-F. Work not performed due to weather on M-Th may be scheduled on Friday

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $59.73 | $77.09 | $94.45 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $74.83 |
| 10th hour | $74.83 |
| Beyond 10 hours | $74.83 |
| **Saturday** | |
| First 8 hours | $74.83 |
| 9th hour | $89.92 |
| 10th hour | $89.92 |
| Beyond 10 hours | $89.92 |
| **Sunday/Holiday** | $89.92 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - OE 324 A120** | **Operating Engineer** | **01/09/2025** |

**Classification Description:** Crane with boom & jib or leads 120' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $76.41 | $98.55 | $120.69 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $98.55 |
| 10th hour | $98.55 |
| Beyond 10 hours | $98.55 |
| **Saturday** | |
| First 8 hours | $98.55 |
| 9th hour | $98.55 |
| 10th hour | $98.55 |
| Beyond 10 hours | $98.55 |
| **Sunday/Holiday** | $120.69 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time over 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - os120** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Crane with main boom & jib 120' or longer

Four 10 hour days may be scheduled Monday-Thursday or Tuesday-Friday. Worked not performed due to weather, Monday-Thursday may be scheuled Friday

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $63.27 | $82.40 | $101.53 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $79.91 |
| 10th hour | $79.91 |
| Beyond 10 hours | $79.91 |
| **Saturday** | |
| First 8 hours | $79.91 |
| 9th hour | $96.54 |
| 10th hour | $96.54 |
| Beyond 10 hours | $96.54 |
| **Sunday/Holiday** | $96.54 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

Friday

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - RC** | **Operating Engineer** | **05/10/2024** |

**Classification Description:** Regular crane, job mechanic, concrete pump with boom

Work in excess of 12 per day M-F shall be paid at double time.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $64.85 | $84.71 | $104.56 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $82.12 |
| 10th hour | $82.12 |
| Beyond 10 hours | $82.12 |
| **Saturday** | |
| First 8 hours | $82.12 |
| 9th hour | $99.38 |
| 10th hour | $99.38 |
| Beyond 10 hours | $99.38 |
| **Sunday/Holiday** | $99.38 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - Skidsteer Operator** | **Operating Engineer** | **06/20/2024** |

**Classification Description:** Skidsteer forklift when working with fence and Door companies

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $65.69 | $83.17 | $100.65 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $83.17 |
| 10th hour | $83.17 |
| Beyond 10 hours | $83.17 |
| **Saturday** | |
| First 8 hours | $83.17 |
| 9th hour | $83.17 |
| 10th hour | $83.17 |
| Beyond 10 hours | $83.17 |
| **Sunday/Holiday** | $100.65 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - TDH, Backhoe** | **Operating Engineer** | **06/20/2024** |

**Classification Description:** Hoisting Operator, Two Drum Hoist, Rubber Tire Backhoe

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $75.41 | $97.11 | $118.82 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $97.11 |
| 10th hour | $97.11 |
| Beyond 10 hours | $97.11 |
| **Saturday** | |
| First 8 hours | $97.11 |
| 9th hour | $97.11 |
| 10th hour | $97.11 |
| Beyond 10 hours | $97.11 |
| **Sunday/Holiday** | $118.82 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer-Boom and Jib or Leads 120' or longer** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Engineer when operating Crane with Boom and Jib or Leads 120' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $70.96 | $93.68 | $116.38 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $70.96 |
| 10th hour | $70.96 |
| Beyond 10 hours | $90.70 |
| **Saturday** | |
| First 8 hours | $90.70 |
| 9th hour | $110.45 |
| 10th hour | $110.45 |
| Beyond 10 hours | $110.45 |
| **Sunday/Holiday** | $110.45 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer-Boom and Jib or Leads 140' or longer** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Engineer when operating Crane with Boom and Jib or Leads 140' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $71.78 | $94.91 | $118.02 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $71.78 |
| 10th hour | $71.78 |
| Beyond 10 hours | $91.89 |
| **Saturday** | |
| First 8 hours | $71.78 |
| 9th hour | $111.99 |
| 10th hour | $111.99 |
| Beyond 10 hours | $111.99 |
| **Sunday/Holiday** | $111.99 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer-Boom and Jib or Leads 220' or longer** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Engineer when operating Crane with Boom and Jib or Leads 220' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $72.08 | $95.36 | $118.62 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $92.31 |
| 10th hour | $92.31 |
| Beyond 10 hours | $92.31 |
| **Saturday** | |
| First 8 hours | $72.08 |
| 9th hour | $112.55 |
| 10th hour | $112.55 |
| Beyond 10 hours | $112.55 |
| **Sunday/Holiday** | $112.55 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer-Boom and Jib or Leads 300' or longer** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Engineer when operating Crane with Boom and Jib or Leads 300' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $73.58 | $97.60 | $121.62 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $73.58 |
| 10th hour | $73.58 |
| Beyond 10 hours | $73.58 |
| **Saturday** | |
| First 8 hours | $73.58 |
| 9th hour | $115.35 |
| 10th hour | $115.35 |
| Beyond 10 hours | $115.35 |
| **Sunday/Holiday** | $115.35 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Mon-Fri-Double time after 12 hrs/day
Sat-time and a half first 8 hours unless over 40, then double time

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer-Boom and Jib or Leads 400' or longer** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Engineer when operating Crane with Boom and Jib or Leads 400' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $75.08 | $96.62 | $118.16 |
| Apprentice: Apprentice Engineer 1 - 999 Hours | $56.05 | $71.31 | $86.56 |
| Apprentice: Apprentice Engineer 1,000 - 1,999 Hours | $58.22 | $74.56 | $90.90 |
| Apprentice: Apprentice Engineer 2,000 - 2,999 Hours | $60.56 | $78.07 | $95.58 |
| Apprentice: Apprentice Engineer 3,000 - 3,999 hours | $62.58 | $81.11 | $99.62 |
| Apprentice: Apprentice Engineer 4,000 - 4,999 hours | $64.77 | $84.39 | $104.00 |
| Apprentice: Apprentice Engineer 4,999 - 5,999 hours | $68.03 | $89.28 | $110.52 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $75.08 |
| 10th hour | $75.08 |
| Beyond 10 hours | $96.62 |
| **Saturday** | |
| First 8 hours | $75.08 |
| 9th hour | $118.16 |
| 10th hour | $118.16 |
| Beyond 10 hours | $118.16 |
| **Sunday/Holiday** | $118.16 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer-Compressor or Welding Machine** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Engineer operating Compressor or Welding Machine

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $60.11 | $77.40 | $94.68 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $60.11 |
| 10th hour | $60.11 |
| Beyond 10 hours | $90.17 |
| **Saturday** | |
| First 8 hours | $60.11 |
| 9th hour | $90.17 |
| 10th hour | $90.17 |
| Beyond 10 hours | $90.17 |
| **Sunday/Holiday** | $90.17 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer-Forklift** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Lull or Extend-A-Boom Forklift

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.42 | $88.36 | $109.30 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $67.42 |
| 10th hour | $67.42 |
| Beyond 10 hours | $103.84 |
| **Saturday** | |
| First 8 hours | $67.42 |
| 9th hour | $103.84 |
| 10th hour | $103.84 |
| Beyond 10 hours | $103.84 |
| **Sunday/Holiday** | $103.84 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Regular Crane Operator** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Job Mechanic, Concrete  Pump with Boom, and High/Long Reach Shear

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $70.10 | $92.38 | $114.66 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $70.10 |
| 10th hour | $70.10 |
| Beyond 10 hours | $89.47 |
| **Saturday** | |
| First 8 hours | $89.47 |
| 9th hour | $108.85 |
| 10th hour | $108.85 |
| Beyond 10 hours | $108.85 |
| **Sunday/Holiday** | $108.85 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Regular Engineer** | **Operating Engineer** | **08/01/2024** |

**Classification Description:** Hydro Excavator, Remote Controlled  Concrete Breaker, and Concrete Saw operator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $69.13 | $90.93 | $112.72 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $69.13 |
| 10th hour | $69.13 |
| Beyond 10 hours | $88.08 |
| **Saturday** | |
| First 8 hours | $69.13 |
| 9th hour | $107.03 |
| 10th hour | $107.03 |
| Beyond 10 hours | $107.03 |
| **Sunday/Holiday** | $107.03 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Monday-Friday-Double time after 12hrs/day
Saturday-Double time starts after 40 hrs otherwise first 8 are time and a half

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Marine Construction and Dredging Class I - OE324** | **Operating Engineer - Marine Construction** | **01/16/2025** |

**Classification Description:** Craft Foreman, Diver/Wet Tender, Engineer, Engineer (hydraulic dredge), Blaster

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $84.30 | $110.05 | $135.80 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $110.05 |
| 10th hour | $110.05 |
| Beyond 10 hours | $110.05 |
| **Saturday** | |
| First 8 hours | $110.05 |
| 9th hour | $110.05 |
| 10th hour | $110.05 |
| Beyond 10 hours | $110.05 |
| **Sunday/Holiday** | $135.80 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Marine Construction and Dredging Class II A - OE324** | **Operating Engineer - Marine Construction** | **01/16/2025** |

**Classification Description:** Crane, Backhoe, Material Handler, All Self-Propelled Drill Rigs, Mechanic/Welder, Asst. Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $82.80 | $107.80 | $132.80 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $107.80 |
| 10th hour | $107.80 |
| Beyond 10 hours | $107.80 |
| **Saturday** | |
| First 8 hours | $107.80 |
| 9th hour | $107.80 |
| 10th hour | $107.80 |
| Beyond 10 hours | $107.80 |
| **Sunday/Holiday** | $132.80 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Marine Construction and Dredging Class II B - OE324** | **Operating Engineer - Marine Construction** | **01/16/2025** |

**Classification Description:** Friction, Lattice Boom, or Crane License Cert., Endorse Tug or Tow Boat Operator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $85.80 | $112.30 | $138.80 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $112.30 |
| 10th hour | $112.30 |
| Beyond 10 hours | $112.30 |
| **Saturday** | |
| First 8 hours | $112.30 |
| 9th hour | $112.30 |
| 10th hour | $112.30 |
| Beyond 10 hours | $112.30 |
| **Sunday/Holiday** | $138.80 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Marine Construction and Dredging Class III - OE324** | **Operating Engineer - Marine Construction** | **01/16/2025** |

**Classification Description:** Deck Equipment Operator, (Machineryman), Maintenance of Crane, Tug/Launch Operator, Loader/Dozer on Barge, Deck Machinery, etc.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $78.30 | $101.05 | $123.80 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $101.05 |
| 10th hour | $101.05 |
| Beyond 10 hours | $101.05 |
| **Saturday** | |
| First 8 hours | $101.05 |
| 9th hour | $101.05 |
| 10th hour | $101.05 |
| Beyond 10 hours | $101.05 |
| **Sunday/Holiday** | $123.80 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Marine Construction and Dredging Class IV - OE324** | **Operating Engineer - Marine Construction** | **01/16/2025** |

**Classification Description:** Deck Equipment Operator, Machineryman/Fireman, (4 equipment units or more), Off Road Trucks, Deck
Hand, Tug/Engineer, Crane Maint. (50 ton and under/Backhoe 115,000 lbs. or less), Asst. Tug Operator, Blaster Helper.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $73.35 | $93.85 | $114.35 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $93.85 |
| 10th hour | $93.85 |
| Beyond 10 hours | $93.85 |
| **Saturday** | |
| First 8 hours | $93.85 |
| 9th hour | $93.85 |
| 10th hour | $93.85 |
| Beyond 10 hours | $93.85 |
| **Sunday/Holiday** | $114.35 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Crane Operator - 324 B400** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Crane Operator w/400' Boom or Longer w/Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $81.86 | $106.37 | $130.88 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $106.37 |
| 10th hour | $106.37 |
| Beyond 10 hours | $106.37 |
| **Saturday** | |
| First 8 hours | $106.37 |
| 9th hour | $106.37 |
| 10th hour | $106.37 |
| Beyond 10 hours | $106.37 |
| **Sunday/Holiday** | $130.88 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time over 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 A300** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Crane with boom & jib or leads 300' or longer
Work in excess of 12 per day M-F shall be paid at double time.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $79.36 | $102.78 | $126.20 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $102.78 |
| 10th hour | $102.78 |
| Beyond 10 hours | $102.78 |
| **Saturday** | |
| First 8 hours | $102.78 |
| 9th hour | $102.78 |
| 10th hour | $102.78 |
| Beyond 10 hours | $102.78 |
| **Sunday/Holiday** | $126.20 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time over 12 hours Mon-Sat.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 A400** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Crane with boom & jib or leads 400' or longer
Work in excess of 12 per day M-F shall be paid at double time.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $80.86 | $104.94 | $129.01 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $104.93 |
| 10th hour | $104.93 |
| Beyond 10 hours | $104.93 |
| **Saturday** | |
| First 8 hours | $104.93 |
| 9th hour | $104.93 |
| 10th hour | $104.93 |
| Beyond 10 hours | $104.93 |
| **Sunday/Holiday** | $129.01 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time over 12 hours/day Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 A50** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Tower Crane & Derrick Operator 50' or More

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $77.14 | $99.59 | $122.05 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $99.59 |
| 10th hour | $99.59 |
| Beyond 10 hours | $99.59 |
| **Saturday** | |
| First 8 hours | $99.59 |
| 9th hour | $99.59 |
| 10th hour | $99.59 |
| Beyond 10 hours | $99.59 |
| **Sunday/Holiday** | $122.05 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 B140** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Crane Operator w/140' of /Boom or Longer w/Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $78.59 | $101.68 | $124.76 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $101.67 |
| 10th hour | $101.67 |
| Beyond 10 hours | $101.67 |
| **Saturday** | |
| First 8 hours | $101.67 |
| 9th hour | $101.67 |
| 10th hour | $101.67 |
| Beyond 10 hours | $101.67 |
| **Sunday/Holiday** | $124.76 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 B220** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Crane Operator w/220' of Boom or Longer w/Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $78.86 | $100.76 | $123.97 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $102.06 |
| 10th hour | $102.06 |
| Beyond 10 hours | $102.06 |
| **Saturday** | |
| First 8 hours | $102.06 |
| 9th hour | $102.06 |
| 10th hour | $102.06 |
| Beyond 10 hours | $102.06 |
| **Sunday/Holiday** | $125.27 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 B300** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Crane Operator w/300' of Boom or Longer w/Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $80.36 | $104.22 | $128.07 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $104.22 |
| 10th hour | $104.22 |
| Beyond 10 hours | $104.22 |
| **Saturday** | |
| First 8 hours | $104.22 |
| 9th hour | $104.22 |
| 10th hour | $104.22 |
| Beyond 10 hours | $104.22 |
| **Sunday/Holiday** | $128.07 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time over 12 hours Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 B50** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Tower Crane & Derrick Operator 50' or more w/Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $78.14 | $101.03 | $123.92 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $101.03 |
| 10th hour | $101.03 |
| Beyond 10 hours | $101.03 |
| **Saturday** | |
| First 8 hours | $101.03 |
| 9th hour | $101.03 |
| 10th hour | $101.03 |
| Beyond 10 hours | $101.03 |
| **Sunday/Holiday** | $123.92 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - 324 PRE60118** | **Operating Engineer Steel Work** | **06/20/2024** |

**Classification Description:** Oiler/pumps over 6" **Applies to Operators who have previously worked under this classification PRIOR to 6/1/18**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $61.22 | $76.76 | $92.29 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $76.75 |
| 10th hour | $76.75 |
| Beyond 10 hours | $76.75 |
| **Saturday** | |
| First 8 hours | $76.75 |
| 9th hour | $76.75 |
| 10th hour | $76.75 |
| Beyond 10 hours | $76.75 |
| **Sunday/Holiday** | $92.29 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**Overtime Rate Comment:** Double time after 12 Mon-Sat

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer - EF** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Extended boom forklift over 5,000 lb capacity, 1 Drum Hoist

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $72.21 | $92.53 | $112.84 |

### Overtime Provisions

| Over 8-hour day/40-hour week | |
|---|---|
| 9th hour | $92.53 |
| 10th hour | $92.53 |
| Beyond 10 hours | $112.84 |
| **Saturday** | |
| First 8 hours | $92.53 |
| 9th hour | $92.53 |
| 10th hour | $92.53 |
| Beyond 10 hours | $112.84 |
| **Sunday/Holiday** | $112.84 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW120** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane w/ 120' boom or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $74.14 | $95.24 | $116.33 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $95.24 |
| 10th hour | $95.24 |
| Beyond 10 hours | $116.33 |
| **Saturday** | |
| First 8 hours | $95.24 |
| 9th hour | $95.24 |
| 10th hour | $95.24 |
| Beyond 10 hours | $116.33 |
| **Sunday/Holiday** | $116.33 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW120O** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane w/ 120' boom or longer w/ Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $75.01 | $96.54 | $118.07 |

## Overtime Provisions

| Over 8-hour day/40-hour week | |
|---|---|
| 9th hour | $96.54 |
| 10th hour | $96.54 |
| Beyond 10 hours | $118.07 |
| **Saturday** | |
| First 8 hours | $96.54 |
| 9th hour | $96.54 |
| 10th hour | $96.54 |
| Beyond 10 hours | $118.07 |
| **Sunday/Holiday** | $118.07 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW140** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane w/ 140' boom or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $75.19 | $96.80 | $118.41 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $96.80 |
| 10th hour | $96.80 |
| Beyond 10 hours | $118.41 |
| **Saturday** | |
| First 8 hours | $96.80 |
| 9th hour | $96.80 |
| 10th hour | $96.80 |
| Beyond 10 hours | $118.41 |
| **Sunday/Holiday** | $118.41 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW140O** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane w/ 140' boom or longer W/ Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $76.19 | $98.24 | $120.28 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $120.28 |
| **Saturday** | |
| First 8 hours | $98.24 |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $120.28 |
| **Sunday/Holiday** | $120.28 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW220** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Boom & Jib 220' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $76.46 | $98.62 | $120.78 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $98.62 |
| 10th hour | $98.62 |
| Beyond 10 hours | $120.78 |
| **Saturday** | |
| First 8 hours | $98.62 |
| 9th hour | $98.62 |
| 10th hour | $98.62 |
| Beyond 10 hours | $120.78 |
| **Sunday/Holiday** | $120.78 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW220O** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane w/ 220' boom or longer w/ Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $74.01 | $95.11 | $116.20 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $95.11 |
| 10th hour | $95.11 |
| Beyond 10 hours | $116.20 |
| **Saturday** | |
| First 8 hours | $95.11 |
| 9th hour | $95.11 |
| 10th hour | $95.11 |
| Beyond 10 hours | $116.20 |
| **Sunday/Holiday** | $116.20 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW300** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Boom & Jib 300' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $76.96 | $99.34 | $121.72 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $99.34 |
| 10th hour | $99.34 |
| Beyond 10 hours | $121.72 |
| **Saturday** | |
| First 8 hours | $99.34 |
| 9th hour | $99.34 |
| 10th hour | $99.34 |
| Beyond 10 hours | $121.72 |
| **Sunday/Holiday** | $121.72 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW300O** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane w/ 300' boom or longer w/ Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $77.96 | $100.78 | $123.59 |

### Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $100.78 |
| 10th hour | $100.78 |
| Beyond 10 hours | $123.59 |
| **Saturday** | |
| First 8 hours | $100.78 |
| 9th hour | $100.78 |
| 10th hour | $100.78 |
| Beyond 10 hours | $123.59 |
| **Sunday/Holiday** | $123.59 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW400** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Boom & Jib 400' or longer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $78.46 | $101.49 | $124.52 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $101.49 |
| 10th hour | $101.49 |
| Beyond 10 hours | $124.52 |
| **Saturday** | |
| First 8 hours | $101.49 |
| 9th hour | $101.49 |
| 10th hour | $101.49 |
| Beyond 10 hours | $124.52 |
| **Sunday/Holiday** | $124.52 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SW400O** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane w/ 400' boom or longer w/ Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $79.46 | $102.93 | $126.39 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $102.93 |
| 10th hour | $102.93 |
| Beyond 10 hours | $126.39 |
| **Saturday** | |
| First 8 hours | $102.93 |
| 9th hour | $102.93 |
| 10th hour | $102.93 |
| Beyond 10 hours | $126.39 |
| **Sunday/Holiday** | $126.39 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SWCO** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane Operator, Job Mechanic, 3 Drum Hoist & Excavator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $73.65 | $94.59 | $115.53 |
| Apprentice: 0-999 hours | $59.16 | $76.02 | $92.88 |
| Apprentice: 1,000-1,999 hours | $61.56 | $79.63 | $97.68 |
| Apprentice: 2,000-2,999 hours | $63.96 | $83.22 | $102.48 |
| Apprentice: 3,000-3,999 hours | $66.38 | $84.18 | $101.98 |
| Apprentice: 4,000-4,999 hours | $68.78 | $90.46 | $112.12 |
| Apprentice: 5,000 hours | $71.20 | $91.09 | $110.99 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $94.59 |
| 10th hour | $94.59 |
| Beyond 10 hours | $115.53 |
| **Saturday** | |
| First 8 hours | $94.59 |
| 9th hour | $94.59 |
| 10th hour | $94.59 |
| Beyond 10 hours | $115.53 |
| **Sunday/Holiday** | $115.53 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SWCO-O** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Crane Operator w/ Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $74.65 | $96.03 | $117.40 |

### Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $96.03 |
| 10th hour | $96.03 |
| Beyond 10 hours | $117.40 |
| **Saturday** | |
| First 8 hours | $96.03 |
| 9th hour | $96.03 |
| 10th hour | $96.03 |
| Beyond 10 hours | $117.40 |
| **Sunday/Holiday** | $117.40 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SWCW** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Compressor or Welder Operator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $37.03 | $49.48 | $61.92 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $47.85 |
| 10th hour | $47.85 |
| Beyond 10 hours | $58.67 |
| **Saturday** | |
| First 8 hours | $47.85 |
| 9th hour | $47.85 |
| 10th hour | $47.85 |
| Beyond 10 hours | $58.67 |
| **Sunday/Holiday** | $58.67 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SWHO** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Hoisting Operator, 2 Drum Hoist, & Rubber Tire Backhoe

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $73.01 | $93.67 | $114.33 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $93.67 |
| 10th hour | $93.67 |
| Beyond 10 hours | $114.33 |
| **Saturday** | |
| First 8 hours | $93.67 |
| 9th hour | $93.67 |
| 10th hour | $93.67 |
| Beyond 10 hours | $114.33 |
| **Sunday/Holiday** | $114.33 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SWO** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $53.42 | $67.61 | $81.80 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $65.74 |
| 10th hour | $65.74 |
| Beyond 10 hours | $78.06 |
| **Saturday** | |
| First 8 hours | $65.74 |
| 9th hour | $65.74 |
| 10th hour | $65.74 |
| Beyond 10 hours | $78.06 |
| **Sunday/Holiday** | $78.06 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SWTD50** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Tower Crane & Derrick where work is 50' or more

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $74.74 | $96.16 | $117.57 |

### Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $96.16 |
| 10th hour | $96.16 |
| Beyond 10 hours | $117.57 |
| **Saturday** | |
| First 8 hours | $96.16 |
| 9th hour | $96.16 |
| 10th hour | $96.16 |
| Beyond 10 hours | $117.57 |
| **Sunday/Holiday** | $117.57 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Steel Work - SWTD50 O** | **Operating Engineer Steel Work** | **05/10/2024** |

**Classification Description:** Tower Crane & Derrick 50' or more w/ Oiler

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $75.84 | $97.69 | $119.54 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $97.69 |
| 10th hour | $97.69 |
| Beyond 10 hours | $119.54 |
| **Saturday** | |
| First 8 hours | $97.69 |
| 9th hour | $97.69 |
| 10th hour | $97.69 |
| Beyond 10 hours | $119.54 |
| **Sunday/Holiday** | $119.54 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

4 10s allowed M-Th with Friday makeup day because of bad weather

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Underground-324-Class I** | **Operating Engineer Underground** | **10/31/2024** |

**Classification Description:** Class I Equipment-Air Compressors in Manifold with throttle valve Auto Grade or similar type machine
Backfill Tamper Backhoe
Backhoe on Farm Type Tractor 45 H.P. & over. Ballast Regulator (R.R.)
Batch Plant (concrete - central mix) Batch Plant Operator (concrete) Blade Grader Operator
Bulldozer
Caisson Drilling Machine Cherry Picker--15 ton or over Clamshell
Concrete/Asphalt Saw Operator - Power Driven (3yrs experience or more) Concrete Belt Placer (Formless)
Concrete Cure/Finish Machine Operator
Concrete Mixer 21 cu. ft. or over Concrete Paver [two (2) drums or larger] Concrete Pump (Truck Mount)
Concrete Pump (3 inch and over) Concrete Pump with Boom Operator Conveyor Loader Operator (Euclid type) Core Drilling Machine
Crane (Crawler, truck type or pile driving)
Crane or De1Tick with any attachment incl. clamshell, dragline, shovel, backhoe, etc. Directional Drill/Boring Machine Operator
Dozer Dragline
Dredge Engineer Dredge Operator
Drilling Machine on which the drill is an integral part
Earth Mover--rubber tired--(paddle wheel, 619, 631, TS-24 or similar type) Earth Mover rubber tired--tandem ($.50 cents per hr. added for each bowl) Elevating
Grader Operator
End Loader
End Loader Operator (1½ yard capacity and over)
Excavator
Farm type tractor with attached pan
Finishing Machine Operator (Asphalt or Concrete) Foreman/Operating Engineer
Forklift (10 ton or over)
GPS or Electronic Grade on motorized equipment Gradall and similar type machine
Grader
Gravel Processing plant (portable) Operator of Guard Rail Post Driver Haul Units (off-highway) Helicopter crew
Highlift Shovel--1-1 /2 cu. yd. or over Hoisting Engineer
Horizontal Directional Drill Hydraulic Boom Truck
Hydro demolition equipment (water blaster) Hydro Excavator
Loader--Self-propelled (Belt-Chain- Wheel) (Holland or similar type) Locomotive and/or Dinkey Engine
Mechanic Milling Machine
Mucking Machine
Operator of Guard Rail Post Driver Paver Operator - Concrete
Pile Driver--Skid or Crawler Power Shovel
Rock Breaking Plant
Rock Crushing Plant (Portable)
Root Rake, Tractor Mounted Sand Blaster Vacuum Roto Mill
Scraper Self-Propelled or Tractor Drawn

Self-propelled Widener or Gravel distributing shoulder machine Shovel Operator
Side Boom Tractor (type D-4 or equivalent or larger) Slope Paver
Stump Remover Tractor Mounted Surface Heater & Planer
Surface Roller with Dozer Blade
Swinging Boom Truck (over 12-ton capacity) Tilling Machine or (Roto Grader)
Tractor Operator
Tractor--Boom, Winch or Hoe Head Tractor--Push
Tractor with Scoop Tractor Mounted Spreader Tree Mover
Trench Machine (ladder or wheel type) Trencher (over 8ft. digging capacity) Tugboat Operator
Tunnel Boring Machine Tunnel Shield
Vacuum Machine/Truck Operator Well Drilling Machine
Well Drilling Rig
Winch Truck with A Frame

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $68.12 | $87.01 | $105.89 |
| Apprentice: Apprentice Engineer 0-999 hours | $54.36 | $69.57 | $84.77 |
| Apprentice: Apprentice Engineer 1,000-1,999 hours | $56.53 | $72.83 | $89.11 |
| Apprentice: Apprentice Engineer 2,000-2,999 hours | $58.69 | $76.06 | $93.43 |
| Apprentice: Apprentice Engineer 3,000-3,999 hours | $60.87 | $79.33 | $97.79 |
| Apprentice: Apprentice Engineer 4,000-4,999 hours | $64.22 | $84.36 | $104.49 |
| Apprentice: Apprentice Engineer 5,000-5,999 hours | $65.06 | $85.62 | $106.17 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $87.00 |
| 10th hour | $87.00 |
| Beyond 10 hours | $87.00 |
| **Saturday** | |
| First 8 hours | $87.00 |
| 9th hour | $87.00 |
| 10th hour | $87.00 |
| Beyond 10 hours | $87.00 |
| **Sunday/Holiday** | $105.89 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Underground-324-Class II** | **Operating Engineer Underground** | **10/31/2024** |

**Classification Description:** Class II Equipment
Air Compressor with Throttle Valve or Clever Brooks type comb. Backhoe (with 3/8-yard bucket or less)
Backhoe on Farm Type Tractor under 45 H.P.
Batch Plant (concrete-dry batch)
Boom Truck (power swing type boom)
Cherry Picker under 15 ton
Crusher
Crusher Operator
Concrete Pump
Concrete Mesh Depressor--independently operated Concrete Spreader--Power Driven
End Dumps when operated by an Operating Engineer End Loader under 1-1/2 cu yd.
Gunite Machine
Head Greaser
Hoist
Lowboy Operator
Mesh or Steel Placer (motorized)
Multiple Tamping Machine (R.R.)
Power Curing Spraying Machine (Formless)
P.C.C. Concrete Belt Placer (form type)
Pull Grader--Power Control
Pump Operator (6" discharge or over, gas diesel, powered or generator of 300 amp or larger)
Refrigerating Machine--Freezing operation Ross Carrier
Self-propelled convey transfer devise. Sheepfoot Roller (self-propelled)
Side Boom Tractor (smaller than D-4 type or equivalent)
Sweeper (Wayne type and similar equipment)
Telescoping laser finish machine (laser screed)
Tractor (pneu-tired, other than backhoe or front-end loader)
Trencher (8ft. digging capacity and smaller)
Trench Machine 24" and under
Tube Float (motorized)
Vac Truck
Washing Plant Operator Welder

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $64.00 | $83.38 | $102.75 |

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $80.82 |
| 10th hour | $80.82 |
| Beyond 10 hours | $80.82 |
| **Saturday** | |
| First 8 hours | $80.82 |
| 9th hour | $80.82 |
| 10th hour | $80.82 |
| Beyond 10 hours | $80.82 |
| **Sunday/Holiday** | $97.65 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Underground-324-Class III** | **Operating Engineer Underground** | **10/31/2024** |

**Classification Description:** Class III Equipment
Air Compressor (600 CFM or larger)
Air Compressor [two (2) or more - less than 600 CFM] Base Paver (Jersey or similar type machine)
Boom Truck (Non swinging, Non powered type boom) Concrete Breaker
Concrete Finishing Machine
Concrete Paver (1 drum - ½ yard or larger) Curb Machine
Elevator (other than passenger) Hoist (one drum)
Jacks - Hydraulic Power-driven multiple jack system Maintenance Man
Mechanics Helper Paving Breaker
Power Broom Self-propelled
Pump [ two (2) or more 4 inch up to 6-inch discharge gas or diesel powered-excluding submersible pumps)
Pumpcrete Machine and similar equipment Roller (Earth & Sub-base material) Screening Plant Operator
Spike Machine (R.R.)
Tamper-Multiple Vibrating-Earth and Sub-base material Tractor with Drill--50 H.P. or over Well Point System Wagon Drill (multiple)
Welding Machine or Generator [two (2) or more 300 amp. Or larger -gas or diesel powered]
Well Point System
Widener (Apsco or similar type)

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $63.27 | $82.28 | $101.29 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $79.78 |
| 10th hour | $79.78 |
| Beyond 10 hours | $79.78 |
| **Saturday** | |
| First 8 hours | $79.78 |
| 9th hour | $79.78 |
| 10th hour | $79.78 |
| Beyond 10 hours | $79.78 |
| **Sunday/Holiday** | $96.29 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Underground-324-Class IV** | **Operating Engineer Underground** | **10/31/2024** |

**Classification Description:** Class IV Equipment
Air Compressor Operator (over 250 CFM)
All Mulching Equipment
All Walk Behind or Remote-Control Powered Equipment (autonomous equipment)
Assistant to Engineer Automatic Dry Batch Plant
Belt Spreader (motorized including transfer device by remote, wireless or cable) Boiler
Boom or Winch truck operator
Broom & Belt Machine
Chair Cart (Self-propelled) Concrete Pumps (under 3")
Curing Equipment Operator (self-propelled)
Deck Hand
Digger Post Hole (Power-driven)
End loader Operator (under 3/4-yard capacity)
Extend A Boom Forklift--under 10 Ton
Farm Tractor with attachments Finishing Machine (concrete)
Forklift under 10 ton
Form Grader (if motorized)
Georgia Buggy -Power wheel barrel l ¾ yard with a seat Generator (15 kw or greater)
Greaser Helper
Hydraulic pipe pushing machine Mechanical Heater
Mechanics Helper
Outboard or Inboard Motorboat Power Bin Operator
Pug Mill
Pumps - [two (2) or more up to 4 in. discharge if used three (3) hours or more a day - gas or diesel powered- excluding submersible pumps]
Roller (other than asphalt)
Seaman Tiller
Skid Steer
Stump Remover (Grinder)
Sweeper (Wayne type and similar equipment) Tamper
Trencher (service)
Vibratory Compaction Equipment Operator (6 ft. wide or over)
Walk Behind Forklift
Water Wagon

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $62.70 | $81.43 | $100.15 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $78.96 |
| 10th hour | $78.96 |
| Beyond 10 hours | $78.96 |
| **Saturday** | |
| First 8 hours | $78.96 |
| 9th hour | $78.96 |
| 10th hour | $78.96 |
| Beyond 10 hours | $78.96 |
| **Sunday/Holiday** | $95.22 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Operating Engineer Underground-324-Class V** | **Operating Engineer Underground** | **10/31/2024** |

**Classification Description:** Class V Equipment
Concrete/Asphalt Saw Operator- Power Driven (Less than 3 yrs. experience) Density/Soil Engineer
Directional Boring Utility Man
Discharge Pumps 4" or less (1 - 4 units) Dump Truck Operator
Dumper (Wagon, T1uck, Etc.) - or trade Fence Erector /Power Driven
Guard Post Driver Operator (power driven) Hydra Seeder
Light Plants (1 to 5 units) Oiler Fireman
Operator of minor equip.
Roto Mill Utility Grade Control Operator
Scissor lifts and basket lifts where used for material hoisting
Sign Installer/Sign Installer with Remote Control Operated Equipment
Straw Blower or Brush Mulcher
Top Man, And Railroad Track and Trestle Engineer Utility Engineer
Water Blasting Utility Engineer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $39.95 | $53.88 | $67.80 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $52.06 |
| 10th hour | $52.06 |
| Beyond 10 hours | $52.06 |
| **Saturday** | |
| First 8 hours | $52.06 |
| 9th hour | $52.06 |
| 10th hour | $52.06 |
| Beyond 10 hours | $52.06 |
| **Sunday/Holiday** | $64.17 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

In the event work is unable to be performed on account of weather Monday through Thursday, then Friday work may be scheduled for the ten (10) hours, at straight-time.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Pipe and Manhole Rehab - 1** | **Pipe and Manhole Rehab** | **05/10/2024** |

**Classification Description:** General Laborer for rehab work or normal cleaning and cctv work-top man, scaffold man, CCTV assistant, jetter-vac assistant

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $28.20 | $38.20 | $48.19 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $38.20 |
| 10th hour | $38.20 |
| Beyond 10 hours | $38.20 |
| **Saturday** | |
| First 8 hours | $38.20 |
| 9th hour | $38.20 |
| 10th hour | $38.20 |
| Beyond 10 hours | $38.20 |
| **Sunday/Holiday** | $38.20 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Pipe and Manhole Rehab - 2** | **Pipe and Manhole Rehab** | **05/10/2024** |

**Classification Description:** Tap cutter/CCTV Tech/Grout Equipment Operator:  unit driver and operator of CCTV; grouting equipment and tap cutting equipment

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $32.70 | $44.95 | $57.19 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $44.95 |
| 10th hour | $44.95 |
| Beyond 10 hours | $44.95 |
| **Saturday** | |
| First 8 hours | $44.95 |
| 9th hour | $44.95 |
| 10th hour | $44.95 |
| Beyond 10 hours | $44.95 |
| **Sunday/Holiday** | $44.95 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Pipe and Manhole Rehab - 3** | **Pipe and Manhole Rehab** | **05/10/2024** |

**Classification Description:** CCTV Technician/Combo Unit Operator:  unit driver and operator of cctv unit or combo unit in connection with normal cleaning and televising work

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $31.45 | $43.07 | $54.69 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $43.07 |
| 10th hour | $43.07 |
| Beyond 10 hours | $43.07 |
| **Saturday** | |
| First 8 hours | $43.07 |
| 9th hour | $43.07 |
| 10th hour | $43.07 |
| Beyond 10 hours | $43.07 |
| **Sunday/Holiday** | $43.07 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Pipe and Manhole Rehab - 4** | **Pipe and Manhole Rehab** | **05/10/2024** |

**Classification Description:** Boiler Operator:  unit driver and operator of steam/water heater units and all ancillary equipment associated

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $33.20 | $45.70 | $58.19 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $45.70 |
| 10th hour | $45.70 |
| Beyond 10 hours | $45.70 |
| **Saturday** | |
| First 8 hours | $45.70 |
| 9th hour | $45.70 |
| 10th hour | $45.70 |
| Beyond 10 hours | $45.70 |
| **Sunday/Holiday** | $45.70 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Pipe and Manhole Rehab - 5** | **Pipe and Manhole Rehab** | **05/10/2024** |

**Classification Description:** Combo Unit driver & Jetter-Vac Operator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $33.20 | $45.70 | $58.19 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $45.70 |
| 10th hour | $45.70 |
| Beyond 10 hours | $45.70 |
| **Saturday** | |
| First 8 hours | $45.70 |
| 9th hour | $45.70 |
| 10th hour | $45.70 |
| Beyond 10 hours | $45.70 |
| **Sunday/Holiday** | $45.70 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Pipe and Manhole Rehab - 6** | **Pipe and Manhole Rehab** | **05/10/2024** |

**Classification Description:** Pipe Bursting & Slip-lining Equipment Operator

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $34.20 | $47.20 | $60.19 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $47.20 |
| 10th hour | $47.20 |
| Beyond 10 hours | $47.20 |
| **Saturday** | |
| First 8 hours | $47.20 |
| 9th hour | $47.20 |
| 10th hour | $47.20 |
| Beyond 10 hours | $47.20 |
| **Sunday/Holiday** | $47.20 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Pipefitter** | **Pipefitter** | **05/10/2024** |

**Classification Description:** Pipefitter, Steamfitter, HVAC-R mechanic

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $77.06 | $100.47 | $118.67 |
| Apprentice: 10th period | $42.91 | $57.34 | $70.42 |
| Apprentice: 1st & 2nd periods | $34.00 | $43.98 | $52.60 |
| Apprentice: 3rd period | $35.25 | $45.85 | $55.10 |
| Apprentice: 4th period | $36.25 | $47.35 | $57.10 |
| Apprentice: 5th period | $36.98 | $48.44 | $58.56 |
| Apprentice: 6th period | $38.23 | $50.32 | $61.06 |
| Apprentice: 7th period | $39.48 | $52.20 | $63.56 |
| Apprentice: 8th period | $40.48 | $53.70 | $65.56 |
| Apprentice: 9th period | $41.48 | $55.20 | $67.56 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $95.27 |
| 10th hour | $95.27 |
| Beyond 10 hours | $113.47 |
| **Saturday** | |
| First 8 hours | $95.27 |
| 9th hour | $95.27 |
| 10th hour | $113.47 |
| Beyond 10 hours | $113.47 |
| **Sunday/Holiday** | $113.47 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Plumber** | **Plumber** | **05/10/2024** |

**Classification Description:** Plumber

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $79.32 | $97.22 | $115.11 |
| Apprentice: 1st Year | $29.48 | $38.33 | $47.18 |
| Apprentice: 2nd Year | $33.10 | $42.83 | $52.55 |
| Apprentice: 3rd Year | $34.75 | $45.23 | $55.70 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $97.22 |
| 10th hour | $97.22 |
| Beyond 10 hours | $115.11 |
| **Saturday** | |
| First 8 hours | $97.22 |
| 9th hour | $115.11 |
| 10th hour | $115.11 |
| Beyond 10 hours | $115.11 |
| **Sunday/Holiday** | $115.11 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Roofer - WOM** | **Roofer** | **05/10/2024** |

**Classification Description:** Commercial Roofer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $62.82 | $79.68 | $96.53 |
| Apprentice: Apprentice 1 | $48.74 | $58.55 | $68.37 |
| Apprentice: Apprentice 2 | $49.25 | $59.32 | $69.39 |
| Apprentice: Apprentice 3 | $50.76 | $61.59 | $72.41 |
| Apprentice: Apprentice 4 | $52.26 | $63.83 | $75.41 |
| Apprentice: Apprentice 5 | $53.77 | $66.10 | $78.43 |
| Apprentice: Apprentice 6 | $55.18 | $68.21 | $81.25 |
| Apprentice: Apprentice 7 | $56.79 | $70.63 | $84.47 |
| Apprentice: Apprentice 8 | $58.27 | $72.85 | $87.43 |
| Apprentice: new apprentice | $48.68 | $58.47 | $68.25 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $79.68 |
| 10th hour | $79.68 |
| Beyond 10 hours | $79.68 |
| **Saturday** | |
| First 8 hours | $79.68 |
| 9th hour | $79.68 |
| 10th hour | $79.68 |
| Beyond 10 hours | $79.68 |
| **Sunday/Holiday** | $96.53 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Sewer Relining Operator - Class I** | **Sewer Relining** | **05/10/2024** |

**Classification Description:** Class I-Operator of audio visual CCTV system including remote in-ground cutter and other equipment used in conjunction with CCTV system.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $52.84 | $69.23 | $85.62 |
| Apprentice: 0-6 months | $41.58 | $54.66 | $67.74 |
| Apprentice: 6-12 months | $45.31 | $60.26 | $75.20 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $69.23 |
| 10th hour | $69.23 |
| Beyond 10 hours | $69.23 |
| **Saturday** | |
| First 8 hours | $69.23 |
| 9th hour | $69.23 |
| 10th hour | $69.23 |
| Beyond 10 hours | $69.23 |
| **Sunday/Holiday** | $85.62 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Sewer Relining Operator - Class II** | **Sewer Relining** | **05/10/2024** |

**Classification Description:** Class II-Operator of hot water heaters and circulation system; water jetters; and vacuum and mechanical debris removal systems and those assisting.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $50.80 | $68.49 | $86.18 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $66.30 |
| 10th hour | $66.30 |
| Beyond 10 hours | $66.30 |
| **Saturday** | |
| First 8 hours | $66.30 |
| 9th hour | $66.30 |
| 10th hour | $66.30 |
| Beyond 10 hours | $66.30 |
| **Sunday/Holiday** | $81.79 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Sheet Metal Worker** | **Sheet Metal Worker** | **05/10/2024** |

**Classification Description:** Journeyman -
A 4 10 schedule may be worked, 4 consecutive days Monday thru Friday.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $74.96 | $95.01 | $115.06 |
| Apprentice: 1st & 2nd Periods | $48.51 | $59.65 | $70.77 |
| Apprentice: 3rd & 4th Periods | $50.74 | $62.99 | $75.23 |
| Apprentice: 5th & 6th Periods | $52.96 | $66.32 | $79.67 |
| Apprentice: 7th & 8th Periods | $55.19 | $69.67 | $84.13 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $95.01 |
| 10th hour | $95.01 |
| Beyond 10 hours | $115.06 |
| **Saturday** | |
| First 8 hours | $95.01 |
| 9th hour | $115.06 |
| 10th hour | $115.06 |
| Beyond 10 hours | $115.06 |
| **Sunday/Holiday** | $115.06 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Sprinkler Fitter  Journeyman** | **Sprinkler Fitter** | **05/10/2024** |

**Classification Description:** Sprinkler Fitter  Journeyman -
4 ten hour days allowed Monday-Friday
Double time pay due after 12 hours worked M-F

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $78.57 | $102.66 | $126.74 |
| Apprentice: 10th Period | $69.91 | $87.12 | $104.33 |
| Apprentice: 1st Period | $31.91 | $40.00 | $48.09 |
| Apprentice: 2nd Period | $51.25 | $60.36 | $69.47 |
| Apprentice: 3rd Period | $53.58 | $63.71 | $73.83 |
| Apprentice: 4th Period | $55.91 | $67.04 | $78.17 |
| Apprentice: 5th Period | $58.25 | $70.40 | $82.55 |
| Apprentice: 6th Period | $60.58 | $73.73 | $86.89 |
| Apprentice: 7th Period | $62.91 | $77.08 | $91.24 |
| Apprentice: 8th Period | $65.25 | $80.44 | $95.62 |
| Apprentice: 9th Period | $67.58 | $83.78 | $99.98 |

**Four 10-hour days allowed? -** No

**Make Up Day Allowed? -** No

## Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $102.66 |
| 10th hour | $102.66 |
| Beyond 10 hours | $126.74 |
| **Saturday** | |
| First 8 hours | $102.66 |
| 9th hour | $126.74 |
| 10th hour | $126.74 |
| Beyond 10 hours | $126.74 |
| **Sunday/Holiday** | $126.74 |

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Tile, Marble & Terrazzo Finisher-BAC2-Metro Detroit** | **Tile, Marble and Terrazzo** | **11/14/2024** |

**Classification Description:** Work: Assisting mechanics (e.g., tile, marble, terrazzo workers) with tasks necessary for completing installations.
Materials: Supporting materials used for tile, marble, or terrazzo work, such as cement and adhesives.

### Wage Rates

| | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $54.19 | $68.23 | $82.26 |
| Apprentice: TMT Finisher Apprentice Level 4 | $40.89 | $52.12 | $63.35 |
| Apprentice: TMT Finisher Apprentice 1st Level | $36.68 | $45.81 | $54.93 |
| Apprentice: TMT Finisher Apprentice 2nd Level | $38.08 | $47.91 | $57.73 |
| Apprentice: TMT Finisher Apprentice 3rd Level | $39.48 | $50.01 | $60.53 |
| Apprentice: TMT Finisher Apprentice Level 5 | $42.29 | $54.22 | $66.15 |
| Apprentice: TMT Finisher Apprentice Level 6 | $43.69 | $56.32 | $68.95 |
| Apprentice: TMT Setter Apprentice 7thLevel | $35.64 | $48.98 | $62.31 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

### Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $68.22 |
| 10th hour | $68.22 |
| Beyond 10 hours | $68.22 |
| **Saturday** | |
| First 8 hours | $68.22 |
| 9th hour | $68.22 |
| 10th hour | $68.22 |
| Beyond 10 hours | $68.22 |
| **Sunday/Holiday** | $82.26 |

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Tile, Marble & Terrazzo Mechanic - BAC 2 - Metro Detroit** | **Tile, Marble and Terrazzo** | **11/14/2024** |

**Classification Description:** Work: Installing and finishing mosaic and terrazzo materials, including precision tasks like grinding and polishing. Adding aggregate to the top of the finished base and troweled or rolled into the finish.
Materials: Marble, mosaic, Venetian enamel, terrazzo, granules of marble, granite, bluestone, enamel, mother of pearl, quartz, ceramic-colored quartz, rubber, neoprene, vinyl, magnesium chloride, and resinous or chemical substances.

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $60.99 | $87.01 | $113.01 |
| Apprentice: TMT Setter Apprentice 1st Level | $41.07 | $51.50 | $61.93 |
| Apprentice: TMT Setter Apprentice 2nd Level | $42.81 | $54.11 | $65.41 |
| Apprentice: TMT Setter Apprentice 3rd Level | $44.55 | $56.72 | $68.89 |
| Apprentice: TMT Setter Apprentice 4thLevel | $46.29 | $59.33 | $72.37 |
| Apprentice: TMT Setter Apprentice 5th Level | $48.03 | $61.94 | $75.85 |
| Apprentice: TMT Setter Apprentice 6th Level | $49.76 | $64.55 | $79.33 |
| Apprentice: TMT Setter Apprentice 7thLevel | $51.50 | $67.15 | $82.79 |
| Apprentice: TMT Setter Apprentice 8th Level | $53.24 | $69.76 | $86.27 |

## Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $60.99 |
| 10th hour | $60.99 |
| Beyond 10 hours | $60.99 |
| **Saturday** | |
| First 8 hours | $60.99 |
| 9th hour | $60.99 |
| 10th hour | $60.99 |
| Beyond 10 hours | $60.99 |
| **Sunday/Holiday** | $95.76 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Tower Technician** | **Tower Technician** | **05/13/2024** |

**Classification Description:**

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $67.89 | $98.24 | $128.58 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $98.24 |
| **Saturday** | |
| First 8 hours | $98.24 |
| 9th hour | $98.24 |
| 10th hour | $98.24 |
| Beyond 10 hours | $98.24 |
| **Sunday/Holiday** | $128.58 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

ONLY due to inclement weather or customer requirements may Friday be used as a make up day if the normal scheduled work week was interrupted and time lost of five (5) hours or more was incurred by workmen covered under the terms of the 6-17-C/6-876-T agreement.

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Truck Driver - RB1** | **Truck Driver** | **05/10/2024** |

**Classification Description:** on all trucks of 8 cubic yard capacity or less (except dump trucks of 8 cubic yard capacity or over, tandem axle trucks, transit mix and semis, euclid type equipment, double bottoms and low boys)

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $53.95 | $70.30 | $86.64 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $69.32 |
| 10th hour | $69.32 |
| Beyond 10 hours | $69.32 |
| **Saturday** | |
| First 8 hours | $69.32 |
| 9th hour | $69.32 |
| 10th hour | $69.32 |
| Beyond 10 hours | $69.32 |
| **Sunday/Holiday** | $84.69 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Truck Driver - RB1A** | **Truck Driver** | **05/10/2024** |

**Classification Description:** of all trucks of 8 cubic yard capacity or over semi, tractor trailer

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $54.10 | $70.52 | $86.94 |

| Overtime Provisions | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $69.55 |
| 10th hour | $69.55 |
| Beyond 10 hours | $69.55 |
| **Saturday** | |
| First 8 hours | $69.55 |
| 9th hour | $69.55 |
| 10th hour | $69.55 |
| Beyond 10 hours | $69.55 |
| **Sunday/Holiday** | $84.99 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Truck Driver - RB1B** | **Truck Driver** | **05/10/2024** |

**Classification Description:** on euclid type equipment, Pole drier, lowboy, doubles, fuel, bus, water

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $54.20 | $69.70 | $85.19 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $69.70 |
| 10th hour | $69.70 |
| Beyond 10 hours | $69.70 |
| **Saturday** | |
| First 8 hours | $69.70 |
| 9th hour | $69.70 |
| 10th hour | $69.70 |
| Beyond 10 hours | $69.70 |
| **Sunday/Holiday** | $85.19 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** Yes

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Truck Driver - RB2** | **Truck Driver** | **05/10/2024** |

**Classification Description:** of all trucks of 8 cubic yd capacity or over

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $44.10 | $48.81 | $49.80 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $56.55 |
| 10th hour | $56.55 |
| Beyond 10 hours | $56.55 |
| **Saturday** | |
| First 8 hours | $56.55 |
| 9th hour | $56.55 |
| 10th hour | $56.55 |
| Beyond 10 hours | $56.55 |
| **Sunday/Holiday** | $56.55 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Truck Driver - RB2A** | **Truck Driver** | **05/10/2024** |

**Classification Description:** of all trucks of 8 cubic yard capacity or less (except dump trucks of 8 cubic yard capacity or over, tandem axle trucks, transit mix and semis, euclid type equipment, double bottoms and low boys)

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $44.00 | $48.66 | $49.60 |

### Overtime Provisions

| | |
|---|---|
| **Over 8-hour day/40-hour week** | |
| 9th hour | $56.40 |
| 10th hour | $56.40 |
| Beyond 10 hours | $56.40 |
| **Saturday** | |
| First 8 hours | $56.40 |
| 9th hour | $56.40 |
| 10th hour | $56.40 |
| Beyond 10 hours | $56.40 |
| **Sunday/Holiday** | $56.40 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

# Prevailing Wage Rates for State Funded Projects

## Official Rate Schedule

## Wayne

| Classification Name | Category | Last Updated |
|---|---|---|
| **Truck Driver - RB2B** | **Truck Driver** | **05/10/2024** |

**Classification Description:** on euclid type equipment

| Wage Rates | Straight Time | Time and a Half | Double Time |
|---|---|---|---|
| Total Hourly Wage | $44.25 | $49.04 | $0.00 |

### Overtime Provisions

| **Over 8-hour day/40-hour week** | |
|---|---|
| 9th hour | $56.78 |
| 10th hour | $56.78 |
| Beyond 10 hours | $56.78 |
| **Saturday** | |
| First 8 hours | $56.78 |
| 9th hour | $56.78 |
| 10th hour | $56.78 |
| Beyond 10 hours | $56.78 |
| **Sunday/Holiday** | $56.78 |

**Four 10-hour days allowed? -** Yes

**Make Up Day Allowed? -** No

**STATE OF MICHIGAN**

***Informational Sheet: Prevailing Wages on State Projects***

## General Information Regarding Fringe Benefits

**Certain** fringe benefits **may** be credited toward the payment of the Prevailing Wage Rate:

- If a fringe benefit is paid directly to a construction mechanic
- If a fringe benefit contribution or payment is made on behalf of a construction mechanic
- If a fringe benefit, which may be provided to a construction mechanic**,** is pursuant to a written contract or policy
- If a fringe benefit is paid into a fund, for a construction mechanic

When a fringe benefit is not paid by an hourly rate, the hourly credit will be calculated based on the annual value of the fringe benefit divided by 2080 hours per year (52 weeks @ 40 hours per week). The following is an example of the types of fringe benefits allowed and how an hourly credit is calculated:

| | | |
|---|---|---|
| Vacation | 40 hours X $14.00 per hour = $560/2080 = | $.27 |
| Dental insurance | $31.07 monthly premium X 12 mos. = $372.84 /2080 = | $.18 |
| Vision insurance | $5.38 monthly premium X 12 mos. = $64.56/2080 = | $.03 |
| Health insurance | $230.00 monthly premium X 12 mos. = $2,760.00/2080 = | $1.33 |
| Life insurance | $27.04 monthly premium X 12 mos. = $324.48/2080 = | $.16 |
| Tuition | $500.00 annual cost/2080 = | $.24 |
| Bonus | 4 quarterly bonus/year x $250 = $1000.00/2080 = | $.48 |
| 401k Employer Contribution | $2000.00 total annual contribution/2080 = | $.96 |
| | Total Hourly Credit | $3.65 |

Other examples of the types of fringe benefits allowed:

- Sick pay
- Holiday pay
- Accidental Death & Dismemberment insurance premiums

The following are examples of items that **will not** be credited toward the payment of the Prevailing Wage Rate

- Legally required payments, such as:
  - Unemployment Insurance payments
  - Workers' Compensation Insurance payments
  - FICA (Social Security contributions, Medicare contributions)
- Reimbursable expenses, such as:
  - Clothing allowance or reimbursement
  - Uniform allowance or reimbursement
  - Gas allowance or reimbursement
  - Travel time or payment
  - Meals or lodging allowance or reimbursement
  - Per diem allowance or payment
- Other payments to or on behalf of a construction mechanic that are not wages or fringe benefits, such as:
  - Industry advancement funds
  - Financial or material loans

## OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE COMMERCIAL SCHEDULE

1. Overtime is represented as a nine character code. Each character represents a certain period of time after the first 8 hours Monday thru Friday.

| | Monday thru Friday | Saturday | Sunday & Holidays | Four 10s |
|---|---|---|---|---|
| First 8 Hours | | **4** | **8** | **9** |
| 9th Hour | **1** | **5** | | |
| 10th Hour | **2** | **6** | | |
| Over 10 hours | **3** | **7** | | |

Overtime for Monday thru Friday after 8 hours:
the 1st character is for time worked in the 9th hour *(8.1 - 9 hours)*
the 2nd character is for time worked in the 10th hour *(9.1 - 10 hours)*
the 3rd character is for time worked beyond the 10th hour *(10.1 and beyond)*

Overtime on Saturday:
the 4th character is for time worked in the first 8 hours on Saturday *(0 - 8 hours)*
the 5th character is for time worked in the 9th hour on Saturday *(8.1 - 9 hours)*
the 6th character is for time worked in the 10th hour *(9.1 - 10 hours)*
the 7th character is for time worked beyond the 10th hour *(10.01 and beyond)*

Overtime on Sundays & Holidays
The 8th character is for time worked on Sunday or on a holiday

Four Ten Hour Days
The 9th character indicates if an optional 4-day 10-hour per day workweek can be worked ***between Monday and Friday*** **without paying overtime after 8 hours worked, unless otherwise noted in the rate schedule. To *utilize a 4 ten workweek, notice is required from the employer to employee prior to the start of work on the project.***

2. Overtime Indicators Used in the Overtime Provision:
   H - means TIME AND ONE-HALF due
   X - means TIME AND ONE-HALF due after 40 HOURS worked
   D - means DOUBLE PAY due
   Y - means YES an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked
   N - means NO an optional 4-day 10-hour per day workweek *cannot* be worked without paying overtime after 8 hours worked

3. EXAMPLES:
   HHHHHHHDN - This example shows that the 1½ rate must be used for time worked after 8 hours Monday thru Friday *(characters 1 - 3);* for all hours worked on Saturday, 1½ rate is due *(characters 4 - 7).* Work done on Sundays or holidays must be paid double time *(character 8).* The N *(character 9)* indicates that 4 ten-hour days is not an acceptable workweek at regular pay.

   XXXHHHHDY - This example shows that the 1½ rate must be used for time worked after 40 hours are worked Monday thru Friday *(characters 1-3);* for hours worked on Saturday, 1½ rate is due *(characters 4 – 7)*. Work done on Sundays or holidays must be paid double time *(character 8).* The Y *(character 9)* indicates that 4 ten-hour days is an acceptable alternative workweek.

# ENGINEERS - CLASSES OF EQUIPMENT LIST

## UNDERGROUND ENGINEERS

### *CLASS I*

Backfiller Tamper, Backhoe, Batch Plant Operator, Clam-Shell, Concrete Paver (2 drums or larger), Conveyor Loader (Euclid type), Crane (crawler, truck type or pile driving), Dozer, Dragline, Elevating Grader, End Loader, Gradall (and similar type machine), Grader, Power Shovel, Roller (asphalt), Scraper (self propelled or tractor drawn), Side Broom Tractor (type D-4 or larger), Slope Paver, Trencher (over 8' digging capacity), Well Drilling Rig, Mechanic, Slip Form Paver, Hydro Excavator.

### *CLASS II*

Boom Truck (power swing type boom), Crusher, Hoist, Pump (1 or more 6" discharge or larger gas or diesel powered by generator of 300 amps 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' digging capacity and smaller), Vac Truck.

### *CLASS III*

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, ½ yard or larger), Elevator (other than passenger), Maintenance Man, Mechanic Helper, Pump (2 or more 4" up to 6" discharge, gas or diesel powered, excluding submersible pump), Pumpcrete Machine (and similar equipment), Wagon Drill Machine, Welding Machine or Generator (2 or more 300 amp or larger, gas or diesel powered).

### *CLASS IV*

Boiler, Concrete Saw (40HP or over), Curing Machine (self-propelled), Farm Tractor (w/attachment), Finishing Machine (concrete), Firemen, Hydraulic Pipe Pushing Machine, Mulching Equipment, Oiler (2 or more up to 4", exclude submersible), Pumps (2 or more up to 4" discharge if used 3 hrs or more a day-gas or diesel powered, excluding submersible pumps), Roller (other than asphalt), Stump Remover, Vibrating Compaction Equipment (6' wide or over), Trencher (service) Sweeper (Wayne type and similar equipment), Water Wagon, Extend-a-Boom Forklift.

## HAZARDOUS WASTE ABATEMENT ENGINEERS

### *CLASS I*

Backhoe, Batch Plant Operator, Clamshell, Concrete Breaker when attached to hoe, Concrete Cleaning Decontamination Machine Operator, Concrete Pump, Concrete Paver, Crusher, Dozer,
Elevating Grader, Endloader, Farm Tractor (90 h.p. and higher),
Gradall, Grader, Heavy Equipment Robotics Operator, Hydro Excavator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slope Paver, Trencher, Ultra High Pressure Waterjet Cutting Tool System Operator, Vactors, Vacuum Blasting Machine Operator, Vertical Lifting Hoist, Vibrating Compaction Equipment (self-propelled), and Well Drilling Rig.

### *CLASS II*

Air Compressor, Concrete Breaker when not attached to hoe, Elevator, End Dumps, Equipment Decontamination Operator, Farm Tractor (less than 90 h.p.), Forklift, Generator, Heater, Mulcher, Pigs (Portable Reagent Storage Tanks), Power Screens, Pumps (water), Stationary Compressed Air Plant, Sweeper, Water Wagon and Welding Machine.

## CARPENTER CRAFT JURISDICTION

Michigan recognizes the Carpenters for any and all work related to weatherization that has historically been the work of the Carpenter. This work shall include, but not be limited to: all work defined under the Federal Weatherization Assistance Program.

The jurisdiction of Carpenters, as to all work that has historically and traditionally been performed consisting of the milling, fashioning, joining, assembling, erecting, fastening or dismantling of all materials of wood, plastic, metal, fiber, cork, or composition and all other substitute materials, as well as the handling, cleaning, erecting, installing and dismantling of all machinery, equipment and all materials used by Carpenters.

The jurisdiction, therefore, extends over the following divisions and subdivisions of the trade: Carpenters and Joiners, Millwrights, Pile Drivers, Bridge, Dock and Wharf Carpenters, Underpinners, Timbermen, and Core-drillers, Shipwrights, Boat Builders, Ship- hand, Stair-Builders, Millmen, Wood and Resilient Floor Decorators, Floor Finishers, Carpet-layers, Shinglers, Siders, Insulators, Acoustic and Drywall Applicators, Sharers and House Movers, Loggers, Lumber and Sawmill Workers, Reed and Rattan Workers, Shingle Weavers, Casket and Coffin Makers, Railroad Carpenters and Car Builders, regardless of material used and all those engaged in the operation of woodworking or other machinery required in fashioning, milling or manufacturing of products used in the trade, and the handling, erecting and installing materials on any of the above divisions or sub-divisions, burning, welding and rigging incidental to the trade. When the term "Carpenter and Joiner" is used, it shall mean all the subdivisions of the trade. The trade autonomy of Carpenters therefore extends over the divisions and subdivisions of the trade, which are set forth as follows:

(a) The framing, erecting and prefabrication of roofs, partitions, floors and other parts of buildings of wood, metal, plastic or other substitutes; application of all metal flashing used for hips, valleys and chimneys; the erection of Stran Steel section or its equal. The building and setting of all forms and centers for brick and masonry. The fabrication and erection of all forms for concrete and decking, the dismantling of same (as per International Agreement) when they are to be re-used on the job or stored for re-use. The cutting and handling of all falsework for fireproofing and slabs. Where power is used in the setting or dismantling of forms, all signaling and handling shall be done by carpenters. The setting of templates for anchor bolts for structural members and for machinery, and the placing, leveling and bracing of these bolts. All framing in connection with the setting or metal columns. The setting of all bulkheads, footing forms and the setting of and fabrication of, screeds and stakes for concrete and mastic floors where the screed is notched or fitted, or made up of more than one member. The making of forms for concrete block, bulkheads, figures, posts, rails, balusters and ornaments, etc.

(b) The handling and erecting of rough material and drywall, the handling, assembly, setting and leveling of all fixtures, display cases, all furniture such as tables, chairs, desks, coat racks, etc., all de-mountable or moveable partitions such as Von wall, E Wall, Steel Case, Herman Miller, Haworth, American Seating, Westinghouse, Lazy Boy, rosewood, etc. All rebuilding, remodeling and setting up of all kinds of partitions, finished lumber, metal and plastic trim to be erected by Carpenters shall be handled from the truck or vehicle delivering same to the job by Carpenters.

## CARPENTER CRAFT JURISDICTION

(c) The building and moving of all scaffolding runways and staging where carpenters' tools are used, the building from the ground up of all scaffolds over fourteen (14) feet in height including metal and specially designed scaffolding. The building and construction of all hoists and derricks made of wood; the making of mortar boards, boxes, trestles, all shoring, razing and moving of buildings. Lift type trucks are to be considered a tool of the trade. Metal siding and metal roofing fall within the scope of jurisdiction for the carpenters.

(d) The cutting or framing and fireproofing of the openings for pipes, conduits, ducts, etc., where they pass through floors, partitions, walls, roofs or fixtures composed in whole or in part of wood. The laying out of making and installation of all inserts and sleeves for pipes, ducts, etc., where carpenters' tools and knowledge are required. The making and installing of all wooden meter boards, crippling and backing for fixtures. The welding of studs and other fastenings to receive material being applied by carpenters.

(e) The installation of all grounds, furring or stripping, ceilings and sidewalks, application of all types of shingling and siding, etc.

(f) The installation of all interior and exterior trim or finish of wood, aluminum, kalamein, hollow or extruded metal, plastic, doors, transoms, thresholds, mullions and windows. The setting of jambs, bucks, window frames of wood or metal where braces or wedges are used. The installation of all wood, metal or other substitutes of casing, molding, chair rail, wainscoting, china closets, base of mop boards, wardrobes, metal partitions as per National Decisions or specific agreements, etc. The complete laying out, fabrication and erection of stairs. The making and erecting of all fixtures, cabinets, shelving, racks, louvers, etc. The mortising and application of all hardware in connection with our work. The sanding and refinishing of all wood, cork or composition floors to be sanded or scraped, filled, sized and buffed, either by hand or power machines. The assembling and setting of all seats in theaters, halls, churches, schools, auditorium, grandstands and other buildings. All bowling alley work.

(g) The manufacture, fabrication and installation of all screens, storm sash, storm doors and garage doors; the installation of wood, canvas, plastic or metal awnings or eye shades, door shelters, jalousies, etc. The laying of wood, wood block and wood composition in floors.

(h) The installation of all materials used in drywall construction, such as plasterboard, all types of asbestos boards, transite and other composition board. The application of all material which serves as base for acoustic tile, except plaster. All acoustical applications as per National Agreement or specific agreement.

(i) The building and dismantling of all barricades, hand rails, guard rails, partitions and temporary partitions. The erection and dismantling of all temporary housing on construction projects.

(j) The installation of rock wool, cork and other insulation material used for sound or weatherproofing. The removal of caulking and placing of staff bead and brick mold and all Oakum caulking, substitutes, etc., and all caulking in connection with carpentry work.

(k) The installation of all chalk boards/marker boards.

## CARPENTER CRAFT JURISDICTION

(l) The operation of all hand operated winches used to raise wooden structures.

(m) The erection of porcelain enameled panels and siding.

(n) The unloading and distribution of all furnished, prefabricated and built-up sections such as door bucks, window frames, cupboards, cabinets, store fixtures, counters and show cases or comparably finished or prefabricated materials, to the job sites or points of installation as used in the construction, alteration and remodeling industry.

(o) The handling of doors, metal, wood or composite, partitions and other finished bulk materials used for trim from the point of delivery.

(p) All processing of these materials and handling after processing.

(q) The making up of panels and fitting them into walls, all bracing and securing, all removal of panels from the casting including all braces, whalers, hairpins, etc.

(r) The handling and setting of all metal pans and sections from the stock piles of reasonable distance as required by job needs shall be performed by carpenters. The stripping of such metal pans, panels or sections is to be performed by carpenters.

(s) The sharpening of all carpenter hand or power tools, or those used by carpenters.

(t). The layout, fabrication, assembling of and erection and dismantling of all displays made of wood, metal, plastic, composition board or any substitute material; the covering of same with any type of material, the crating and un-crating, the handling from the point of unloading and back to the point of loading of all displays and other materials or components.

(u) The same shall apply to all other necessary component parts used for display purposes such as turntables, platforms, identification towers and fixtures, regardless of how constructed, assembled or erected or dismantled.

(v) The make-up, handling, cutting and sewing of all materials used in buntings, flags, banners, decorative paper, fabrics and similar materials used in the display decorative industry for draperies and back drops. The decorative framing of trucks, trailers and autos used as floats or moving displays. The slatting of walls to hand fabrics and other decorative materials, drilling of all holes to accommodate such installations. Setting up and removal of booths constructed of steel or aluminum tubing as stanchions, railings, etc., handling and placing of furniture, appliances, etc., which are being used to complete the booth at the request of the exhibitor. Fabricating and application of leather, plastic and other like materials used for covering of booths. The handling of all materials, fabricating of same. The loading and unloading, erecting and assembling at the exhibit of show area, also in or out of storage when used in booth decorations.

## CARPENTER CRAFT JURISDICTION

(w) A display shall be construed as any exhibit or medium of advertising, open to private or public showing, which is constructed of wood, metal, plastic or any other substitute to accomplish the objectives of advertising or displaying.

(x) Handling, fitting, draping, measuring and installation of fixtures and other hardwares for draperies, all manner of making, measuring, repairing, sizing, hanging and installation of necessary fixtures and hardware for shades and Venetian blinds.

(y) Work consisting of cutting and/or forming of all materials in preparation for installing of floors, walls and ceilings; the installation of all resilient floor and base; wall and ceiling materials to include cork, linoleum, prefabricated, laminated, rubber, asphalt, vinyl, metal, plastic, seamless floors and all other similar materials in sheet, interlocking liquid or tile form; the installation of all artificial turf, the installation, cutting and/or fitting of carpets; installation of padding, matting, linen crash and all preformed resilient floor coverings; the fitting of all devices for the attachment of carpet and other floor, wall and ceiling coverings; track sewing of carpets, drilling of holes for sockets and pins, putting in dowels and slats; and all metal trimmings used; the installation of all underlayments, sealants in preparation of floors, walls and ceilings, the unloading and handling of all materials to be installed and the removal of all materials in preparing floors when contracted for by the employer, shall be done only by employees covered under this Agreement.

(z) The installation of all sink-tops and cabinets, to include all metal trim and covering for same. All cork, linoleum, congo-wall, linewall, veos tile, plexiglass, vinawall tile, composition tile, plastic tile, aluminum tile and rubber in sheets or tile form and the application thereof. All bolta-wall and bolta-wall tile and similar products.

(aa) The handling and placing of all pictures and frames and the assembly of bed frames and accessories. The hanging and placing of all signage.

(bb) The installation of all framework partitions and trim materials for toilets and bathrooms made of wood, metal, plastics or composition materials; fastening of all wooden, plastic or composition cleats to iron or any other material for accessories.

(cc) The erection of cooling towers and tanks.

(dd) The setting, lining, leveling and bracing of all embedded plates, rails and angles. The setting of all stay in place forms.

(ee) Environmental: Clean room, any type of environmental chamber, walk in refrigerated coolers and all refrigerated rooms or buildings.

## CARPENTER CRAFT JURISDICTION

### PILE DRIVING AND CAISSON DRILLING

(ff) All unloading, handling, signaling and driving of piles, whether wood, steel, pipe, beam pile, composite, concrete or molded in place, wood and steel sheeting, cofferdam work, trestle work, dock work, floating derricks, caisson work, foundation work, bridge work, whether old or new, crib work, pipe line work and submarine work. Cutting of all wood, steel or concrete pile, whether by machine or hand; welding and cutting, peeling, and heading of all wood pile, steel sheeting and wood sheeting. The erecting and dismantling of all pile driving rigs, also derricks whether on land or water; also the moving, shoring and underpinning of all buildings. The loading and unloading of all derricks, cranes and pile driving materials. The tending, maintenance and operation of all valves pertaining to the operation of driving of pile. All diving and tending essential to the completion of jurisdictional claims.

All work done in the established yards of the Company and all work not enumerated above, shall be handled and manned as the Employer decides.

The pile driver will unload all material shipped in by rail from the point that the rail car is spotted.

All cleaning and preparation of all piling prior to driving.

The welding and attachment of all boot plates, pile points, splice plates, connectors, rock crosses, driving crosses, driving rigs, point reinforcements and overboots.

The construction, reconstruction, repair, alteration, demolition and partial or complete removal of all marine work including, but not limited to, docks, piers, wharves, quays, jetties, cribs, causeways, breakwaters, lighthouses and permanent buoys, etc. (mixing and placing of concrete excepted).

The driving and pulling of all wood, steel and concrete foundation piles and sheet piling.

The heading, pointing, splicing, cutting and welding of all piles.

The placing of all wales, bolts, studs, lagging, rods and washers including the cutting, drilling, boring or breaking of all holes or openings thereof.

The removal of all materials and/or obstructions of any nature (rip-rap included) that retard or interfere with the driving of piles or with the placing of wales, bolts and rods.

## CARPENTER CRAFT JURISDICTION

This is to be subject to the discretion of the contractor who may choose to use blasting specialists or other demolition specialists.

The handling on the job of all materials used in the work.

The manning of all floating equipment (towing equipment excepted) engaged in the work enumerated, including deck engines, except machinery manned by Operating Engineers.

The placing of all rip-rap, fill stone, bedding stone, cover stone and concrete blocks in connection with marine construction. Work normally performed by Employers, such as soil tests, shoring, underpinning of buildings, cribbing, driving of sheet piling, marine divers, tenders, underwater construction workers and similar operations shall continue to be included in the jurisdiction of this Agreement.

All burning, cutting, welding and fabrication of pipe, H-beams, sheet pile (metal or wood), done on the job site or in the yard of the Employer shall be done by pile drivers. The driving of bearing piles, sheet piling with heavy equipment, caissons, pile caps, auger drilling and boring, the setting up for load testing for any type of piling, all layout and spotting for piling, caisson and boring work, all earth retention, ditch boarding, installing tiebacks.

### ASBESTOS ABATEMENT CARPENTERS

(gg) All erection and maintenance of barriers and partitions used in the removing of asbestos or any abatement work. The abatement of any materials previously installed by the carpenter such as transite, ceiling and floor tiles. All operating and maintaining of current equipment used in any abatement work.

## ELECTRICIAN – SOUND AND COMMUNICATION / DATA/ VOICE JURISDICTION

The installation, testing, service and maintenance, of systems which utilize the transmission and/or transference of voice, sound, vision or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, CATV and CCTV, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school intercom and sound, burglar alarms, low voltage fire alarm systems, low voltage master clock systems, distributed antenna systems (DAS), IP data networks, and all surface-mounted (non-power) telecommunications wiremold. Shall additionally include the installation of all raceway systems of unlimited length in telecommunications rooms, entrance facilities, equipment rooms, and similar areas. Energy management systems. Security systems; perimeter, vibration, card access, access control and sonar/infrared monitoring equipment. Communications systems that transmit or receive information and/or control systems that are intrinsic to the above listed systems; SCADA (Supervisory Control and Data Acquisition), PCM (Pulse Code Modulation), Digital Data Systems, Broadband and Baseband and Carriers, POS (Point of Sale systems), VSAT Data Systems, RF and Remote Control Systems, Fiber Optic Data Systems and Voice and Data Infrastructure and Backbone.

# STATE OF MICHIGAN

**Wage and Hour Division**
**PO Box 30476**
**Lansing, MI 48909**
**517-284-7800**

## *Informational Sheet: Prevailing Wages on State Funded Projects*

**REQUIREMENTS**

**Effective February 13, 2024**

The purpose of establishing prevailing rates is to provide minimum rates of pay that must be paid to workers on construction projects that are financed or financially supported by the state Prevailing rates compiled from the rates contained in collectively bargained agreements which cover the locations of the state projects. While the prevailing wage rates are compiled through surveys of collectively bargained agreements, a collective bargaining agreement is not required for contractors to be on or be awarded state projects. The prevailing rate schedule provides an hourly rate which includes wage and fringe benefit totals for designated construction mechanic classifications. The overtime rates also include wage and fringe benefit totals. Please pay special attention to the overtime and premium pay requirements. The prevailing wage is satisfied when wages plus fringe benefits are equal to or greater than the required rate.

**State of Michigan responsibilities:**

- The department establishes the prevailing rate for each classification of construction mechanic requested by the contracting agents prior to contracts being let out for bid on a state project.

**DTMB responsibilities**

- If a contract is not awarded or construction does not start within 90 days of the date of the issuance of rates, a re- determination of rates must be requested by the contracting agents.
- Rates for classifications needed but not provided on the Prevailing Rate Schedule, ***must*** be obtained ***prior*** to contracts being let out for bid on a state project.

**Contractor responsibilities:**

- Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing rates prescribed in a contract.
- Every contractor and subcontractor shall keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each construction mechanic. This record shall be available for reasonable inspection by DTMB or the department.
- Each contractor or subcontractor is liable for the payment of the prevailing rate to its employees.
- The prime contractor is responsible for advising all subcontractors of the requirement to pay the prevailing rate prior to commencement of work.
- A construction mechanic *shall only* be paid the apprentice rate if registered with the United States Department of Labor, Bureau of Apprenticeship and Training and the rate is included in the contract.

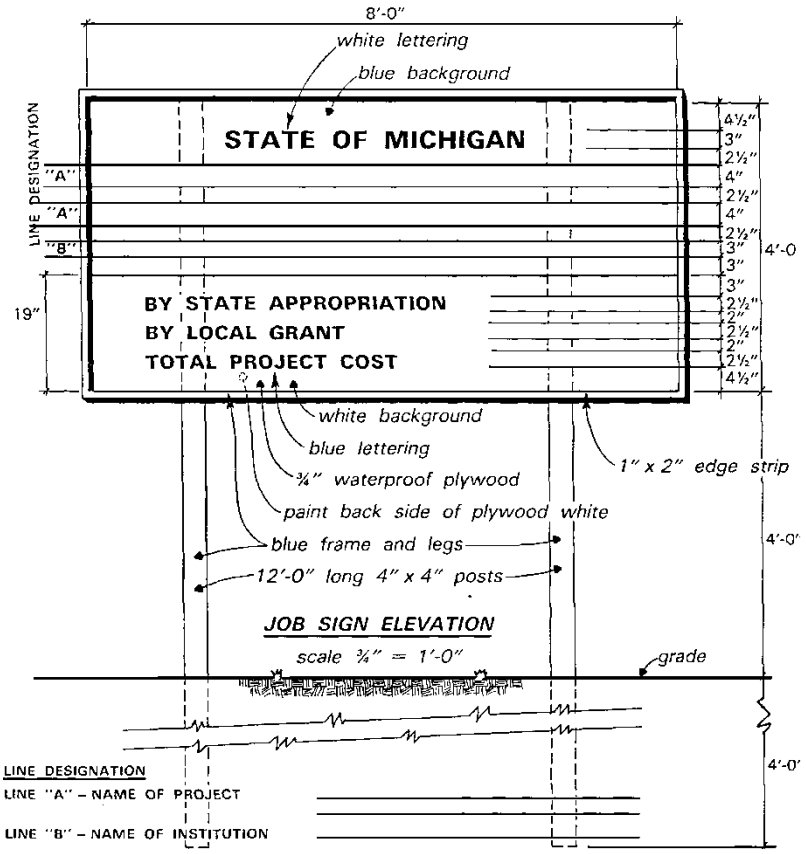
**Enforcement:**

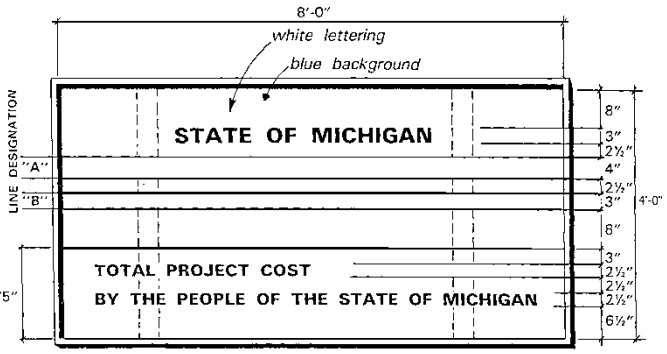
A person who has information of an alleged prevailing wage violation on a prevailing wage project may file a complaint with the State of Michigan. The department will investigate and attempt to resolve the complaint informally. During the course of an investigation, if the requested records and posting certification are not made available in compliance with contractual requirements, the Contracting Agent may consider the Contractor to be in material breach of the contract and may terminate the contract for cause at the sole discretion. There are also civil penalties for failure to be in compliance with Act 10. View the entire text of Act 10 of 2023 at michigan.gov/wagehour.

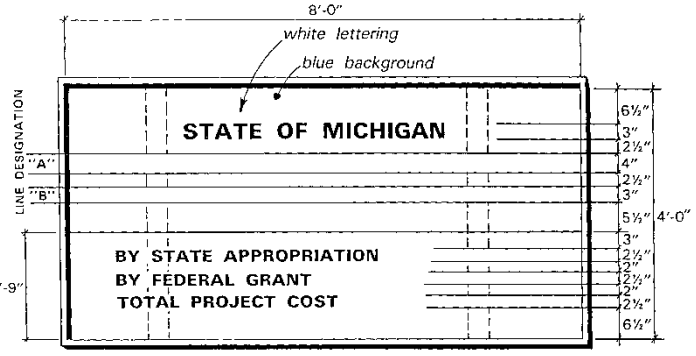
# APPENDIX IV – PROJECT SIGNAGE

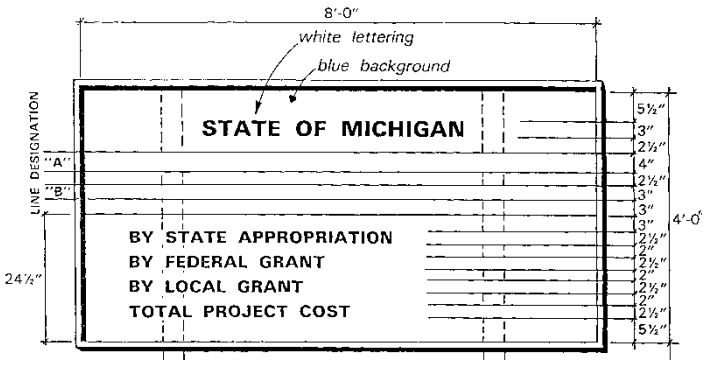
## REQUIRED PROJECT SIGN FOR PROJECTS COSTING IN EXCESS OF $500,000.00

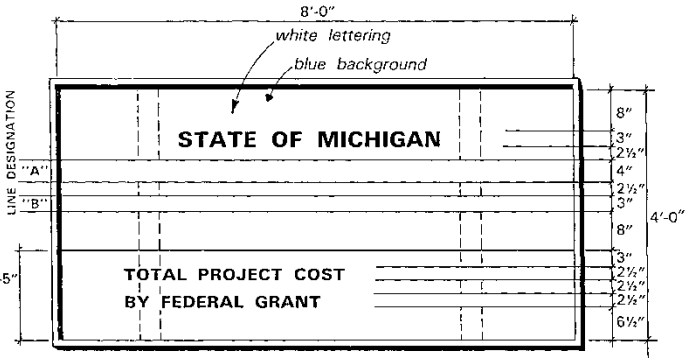
Five examples of project signs. Sign lettering corresponds with the funding arrangement of the project. Alternate signs may be considered; please contact the DTMB Project Director.



# SECTION 01 30 00

# ADMINISTRATIVE REQUIREMENTS

## PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Site mobilization meeting.

C. Progress meetings.

D. Construction progress schedule.

E. Submittals for review, information, and project closeout.

F. Number of copies of submittals.

G. Submittal procedures.

1.02 PROJECT MANAGEMENT

A. Project Manager: Chris Bahjet, DTMB
Project Engineer: David Lutz, P.E., NTH Consultants, Ltd.
NTH Project Manager: David Lutz, P.E., NTH Consultants, Ltd.

B. Cooperate with the Project Manager in allocation of mobilization/staging areas of site; for field offices and sheds, construction equipment, material storage and stockpiling, for vehicular and pedestrian access, traffic, and parking facilities.

C. During construction, coordinate use of site and facilities through the Project Manager.

D. Comply with Project Manager's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

E. Comply with instructions of the Project Manager for use of temporary utilities and construction facilities.

F. Coordinate field engineering and layout work under instructions of the Project Manager.

G. Make the following types of submittals to Engineer through the Project Manager:

1. Requests for Information (RFI): RFIs are to be submitted with a coversheet indicating the RFI number, date, project location, written description of the RFI, and the requestor.

2. Requests for substitution.

3. Submittals: Shop drawings, product data, and samples. Submittals must include a coversheet indicating the date, the submittal number, the specification section and title, the product, and the submittal type. Specific product types, colors, and other attributes are to be clearly marked on the product data by the Contractor.

4. Test and inspection reports.

5. Manufacturer's instructions.

6. Field reports.

7. Applications for payment and change order requests. Change Order Requests must indicate the date of the change order request, the work change, associated unit costs, and total costs of the change order request.

8. Progress schedules.

9. Progress Photographs.

10. Coordination drawings.

11. Closeout submittals.

## PART 2 - PRODUCTS

**NOT USED**

## PART 3 – EXECUTION

3.01 PRECONSTRUCTION MEETING

A. The Owner will schedule a Preconstruction Meeting after Notice of Award.

B. Attendance Required:

1. Owner.
2. Engineer.
3. Contractor.

C. Agenda:

1. Execution of Contractor Agreement.

2. Submission of executed bonds and insurance certificates.

3. Distribution of Contract Documents.

4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.

5. Designation of personnel representing the parties to Contract and Engineer.

6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal requests, Change Orders, and Contract closeout procedures.

7. Scheduling.

D. Project Manager will record minutes and distribute copies within five days after meeting to participants, with two copies to Engineer, Owner, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Schedule and administer Progress Meetings throughout progress of the Work at bi-weekly intervals.

B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Engineer, as appropriate to agenda topics for each meeting.

C. Agenda:

1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Review Request for Information responses and new RFIs as necessary.
5. Identification of problems which impede planned progress.
6. Review of submittals, schedule, and status of submittals.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Maintenance of quality and work standards.
11. Effect of proposed changes on progress schedule and coordination.
12. Other business relating to Work.

D. Project Manager will record minutes and distribute copies within five days after meeting to participants, with two copies to Engineer, Owner, participants, and those affected by decisions made.

3.03 PROGRESS PHOTOGRAPHS

A. Take and maintain one set of all Progress Photographs at project site for reference; same copies as submitted, identified as such.

B. Photography Type: Digital; electronic files.

C. Provide Progress Photographs of site and construction throughout progress of Work, produced by an experienced photographer, acceptable to Engineer.

D. In addition to periodic, recurring views, take photographs of each of the following events:

1. Pavement demolition.
2. Proof rolling.
3. Excavations in progress.
4. Base course placement
5. Pavement placement and compaction.

E. Digital Photographs: 24-bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.

1. Delivery Medium: Via email.

2. File Naming: Include project identification, date and time of view, and view identification.

3. Point of View Sketch: Include digital copy of point of view sketch with each electronic submittal; include point of view identification in each photo file name.

4. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.

5. Hard Copy: Printed hardcopy (color) of PDF file and point of view sketch.

F. All progress photographs shall be submitted at the end of the project with close-out documents.

3.04 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:

1. Product data.
2. Shop drawings.
3. Samples for selection.
4. Samples for verification.

B. Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

3.05 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:

1. Design data (reference specification section or detail).
2. Certificates.
3. Test reports.
4. Inspection reports.
5. Manufacturer's instructions.
6. Manufacturer's field reports.
7. Other types indicated.

B. Submit for Engineer's knowledge as contract administrator or for Owner. No action will be taken.

3.06 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:

1. Project record documents, including as-built drawings.
2. Operation and maintenance data.
3. Warranties.
4. Bonds, at preconstruction meeting.
5. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

C. See Section 01 7000, Article 3.10.I.

3.07 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:

1. Small Size Sheets, not larger than 8-1/2 x 11 inches: Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Engineer.

2. Larger Sheets, not larger than 36 x 48 inches: Submit one reproducible transparency and one opaque reproduction.

B. Documents for Information: Submit two copies.

C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.

D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Engineer.

1. After review, produce duplicates.

2. Retained samples will not be returned to Contractor unless specifically so stated.

## 3.08 SUBMITTAL PROCEDURES

A. Transmit each submittal with AIA Document G810 – Transmittal Letter.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

E. Schedule submittals to expedite the Project, and coordinate submission of related items.

F. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.

G. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

H. Provide space for Contractor and Engineer review stamps.

I. When revised for resubmission, identify all changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

K. Submittals not requested will not be recognized or processed.

L. Create and maintain a log of all submittals and status.

**END OF SECTION**

**SECTION 01 40 00**

**QUALITY REQUIREMENTS**

## PART 1 - GENERAL

1.01 SECTION INCLUDES

A. References and standards.

B. Quality assurance submittals.

C. Control of installation.

D. Tolerances.

E. Testing and inspection services.

1.02 REFERENCES

A. Reference to standards, documents and codes included here in shall be to the last printed edition.

B. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation

C. ASTM D 3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D. ASTM E 329 - Standard Specification for Agencies Engaged Construction Inspection and/or Testing

E. ACI Building Code Requirements for Structural Concrete-ACI 318

1.03 SUBMITTALS

A. Testing Agency (Agency) Qualifications:

1. Submit copy of report of laboratory facilities inspection made by AASHTO accredited Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

B. Test Reports: After each test/inspection, promptly submit three copies of report, one each to Owner, Engineer, and Contractor.

1. Include:

a. Date issued
b. Project title and number
c. Name of inspector
d. Date and time of sampling or inspection
e. Identification of product and specifications section
f. Location in the Project
g. Type of test/inspection
h. Date of test/inspection
i. Results of test/inspection
j. Conformance with Contract Documents
k. When requested by Engineer, provide interpretation of results

2. Include reports prepared by representatives of suppliers and manufacturers who have performed field services. Include observations and recommendations in addition to the information listed in Article 1.03 B.1.

C. Certificates: When specified in individual specification sections, submit certifications by the manufacturers and Contractor or installation/application subcontractor to Engineer, in quantities specified for Product Data.

1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate. When multiple items are depicted on the data sheets, clearly identify with an arrow or circle the specific products intended for use on this project.

D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

## 1.04 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copies of standards at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, submit a Request for Information (RFI) from the Engineer before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.05 TESTING AND INSPECTION AGENCIES

A. Owner will employ and pay for services of an independent testing agency to perform other specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

## PART 2 - PRODUCTS

**NOT USED**

## PART 3 - EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step, in the sequence provided.

C. If Manufacturers' instructions conflict with Contract Documents, request clarification, in the form of an RFI, from Engineer before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. If the manufacturers' tolerances conflict with the Contract Documents, request clarification from the Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.03 TESTING AND INSPECTION

A. Testing Agency Duties:

1. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.

2. Perform specified sampling and testing of products in accordance with specified standards.

3. Ascertain compliance of materials and mixes with requirements of Contract Documents.

4. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.

5. Perform additional tests and inspections required by Engineer.

6. Attend preconstruction meetings and progress meetings.

7. Submit reports of all tests/inspections specified.

B. Limits on Testing/Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.

2. Agency may not approve or accept any portion of the Work.

3. Agency may not assume any duties of Contractor.

4. Agency has no authority to stop the Work.

C. Contractor Responsibilities:

1. Deliver to Agency at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.

2. Cooperate with Agency personnel and provide access to the Work and to manufacturers' facilities.

3. Provide incidental labor and facilities:

   a. To provide access to Work to be tested/inspected.
   b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
   c. To facilitate tests/inspections.
   d. To provide storage and curing of test samples.

4. Notify Engineer and Testing Agency 24 hours prior to expected time for operations requiring testing/inspection services.

5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

D. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Engineer.

E. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

F. Scope: Comply with the Michigan Building Code, DWSD Standard Specifications, and MDOT Standard Specifications for Construction for required testing and inspections. Additional testing and inspections may be required for this project, as specified in the appended Schedule of Testing and Inspection.

G. Manufacturer's Field Services: When specified in the respective specification sections, suppliers/manufacturers are required to provide qualified personnel to observe and verify proper installation, quality of workmanship, and to make appropriate recommendations.

3.04 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct an appropriate remedy or adjust payment.

C. Expedite correction and replacement of Work found to be not-in-compliance to meet interim, substantial, and final completion dates.

**END OF SECTION**

# SECTION 01 50 00

# TEMPORARY FACILITIES AND CONTROLS

## PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Temporary sanitary facilities.

B. Temporary Controls: Barriers, noise control, dust control, debris control, enclosures, and fencing.

C. Security requirements.

D. Waste removal facilities and services.

E. Field offices.

1.02 TEMPORARY SANITARY FACILITIES

A. Provide portable sanitary facilities for use by Contractor personnel. Maintain such facilities in a neat and sanitary condition for the duration of work.

B. Locate portable sanitary facilities within the designated set-up area or at locations designated by the Owner.

1.03 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades required by governing authorities for public rights-of-way and for public access to existing buildings and facilities.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.04 NOISE CONTROL

A. Conform to Owner and City requirements.

1.05 DUST CONTROL

A. Furnish all labor, materials, equipment, supervision, and incidentals necessary to install dust proof partitions to contain dust and debris within the work area.

1.06 DEBRIS CONTROL

A. Conform to Owner and City requirements. Remove debris daily from the worksite.

1.07 VEHICULAR ACCESS AND PARKING

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

E. Construction parking will be allowed in area of Construction Phase Boundary due to limited space on adjacent properties.

F. Do not allow vehicle parking on new pavement.

1.08 SECURITY

A. Accept responsibility for the security of this project. Construct and maintain pedestrian walkways, barricades, screens, railings, and fences as necessary and in strict accordance with applicable codes for protection of pedestrians and parking structure users.

1.09 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure and a minimum of 30 feet from all building walls. Store only enough flammable material on site for one days' use and remove any unused flammable material at the end of each workday.

1.10 PROJECT IDENTIFICATION

A. No signs are allowed without Owner's permission except those required by law.

1.11 REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

A. Clean and repair damage caused by installation or use of temporary work.

B. Restore existing facilities used during construction to original condition.

**PART 2 – PRODUCTS**

**NOT USED**

**PART 3 – EXECUTION**

**NOT USED**

**END OF SECTION**

## SECTION 01 51 00

## TEMPORARY UTILITIES

### PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Electricity, lighting, heat, ventilation, water, and fire precautions.

1.02 TEMPORARY ELECTRICITY

A. Cost: By Contractor.

B. Provide power service as required.

C. Provide main service disconnect and over-current protection at convenient location and meter.

D. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1.03 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft for nighttime work.

B. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.

C. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

D. Maintain lighting and provide routine repairs.

E. Permanent building lighting may be utilized during construction.

1.04 TEMPORARY HEAT

A. Provide, maintain, and pay for all weather protection and heating as required upon the determination of the Owner to properly protect all parts of the structure from damage during construction. This includes protective coverings and enclosures, space heaters with vent pipes to outside of building, fuel, and the necessary attendance. Maintain heat as required. Failure of the Owner to request temporary

heat does not relieve the Contractor of responsibility for damage in event protection has not been provided. Owner will not supply temporary heat.

1.05 TEMPORARY WATER SERVICE

A. Cost of Water Used: By Contractor.

B. Provide and maintain suitable quality water service for construction operations at time of project mobilization.

C. Connect to existing water source. Obtain any necessary approvals or permits from authority having jurisdiction. Exercise measures to conserve water.

D. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

1.06 FIRE PRECAUTIONS

A. Take necessary actions to eliminate fire hazards and to prevent damage to construction areas, set-up and staging areas, existing structures, equipment, and other property.

B. During the construction, provide the type and quantity of fire extinguishers and fire hoses to meet safety and fire prevention practices by appropriate rules and regulations.

C. Provide the necessary personnel and fire-fighting equipment to effectively control incipient fires resulting from welding, flame-cutting or other operations involving the use of flame, sparks or sparking devices. During such operations, remove all highly combustible or flammable materials from the immediate working area. If removal is impossible, protect such materials with suitable non-combustible shield against sparks, flame, or hot metal.

D. Not more than one-half day's supply of flammable liquids shall be brought to the project area at any one time.

E. Locate only a reasonable working supply of flammable materials in the project area, if allowed by the Owner.

F. No flammable fuels shall ever be brought into the building. All storage and handling of fuels must comply with Owner requirements.

G. Remove all oil-soaked rags, papers, and other similar combustible materials from the project area at the close of each day's work, or more often if necessary, and place these materials in metal containers, with self-closing lids.

H. Materials and equipment stored in cardboard cartons, wood crates or other combustible containers shall be stored in an orderly manner and accessibly located. Place fire-fighting equipment of approved types in the immediate vicinity of any materials or equipment stored in this type of crate or carton.

I. Do not dispose of gasoline, benzene, or like combustible materials into sewers, utility access holes, or traps.

J. Remove and legally dispose of all rubbish from the work site. Do not burn rubbish, waste materials, or trash on the site.

K. The Contractor is responsible for the conduct of employees relative to smoking with all smoking to be in areas designated by the Owner.

1.07 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Remove temporary underground installations to a minimum depth of 2 feet and grade site as indicated.

## PART 2 - PRODUCTS

**NOT USED**

## PART 3 - EXECUTION

**NOT USED**

**END OF SECTION**

# SECTION 01 57 13

# TEMPORARY EROSION AND SEDIMENT CONTROL

## PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Prevention of erosion due to construction activities.

B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.

C. Restoration of areas eroded due to insufficient preventive measures.

D. Performance bond.

E. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 REFERENCES

A. ASTM Standard D4355, “Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc Type Apparatus,” ASTM International.

B. ASTM Standard D4491, “Standard Test Methods for Water Permeability of Geotextiles by Permittivity,” ASTM International.

C. ASTM Standard D4533, “Standard Test Method for Trapezoid Tearing Strength of Geotextiles,” ASTM International.

D. ASTM Standard D4632, “Standard Test Method for Grab Breaking Load and Elongation of Geotextiles,” ASTM International.

E. ASTM Standard D4751, “Standard Test Method for Determining Apparent Opening Size of a Geotextile,” ASTM International.

F. ASTM Standard D4873, “Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples,” ASTM International.

G. ASTM Standard D6462, “Standard Practice for Silt Fence Installation,” ASTM International.

H. Environmental Protection Agency (EPA), National Pollutant Discharge Elimination System (NPDES), Construction General Permit; current edition; http://cfpub.epa.gov/npdes/stormwater/cgp.cfm.

I. FHWA FLP-94-005, "Best Management Practices for Erosion and Sediment Control," Federal Highway Administration.

1.03 PERFORMANCE REQUIREMENTS

A. Comply with all City and County requirements, as applicable.

B. Comply with the requirements of the approved Demolition and Soil Erosion and Sedimentation Control Plan and submit periodic inspection reports to the Authority Having Jurisdiction.

C. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits. The cost of the permits will be the responsibility of the Contractor.

D. Provide to Owner a Performance Bond covering erosion and sedimentation preventive measures only, in an amount equal to 100 percent of the cost of erosion and sedimentation control work.

E. Timing: Put preventive measures in place prior to disturbance of surface cover.

F. Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.

1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.

2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.

G. Erosion On-Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.

1. Control movement of sediment and soil from temporary stockpiles of soil.

2. Repair ruts due to equipment and vehicular traffic daily.

3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

H. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.

1. Prevent windblown soil from leaving the project site.

2. Prevent tracking of mud onto public roads outside site.

3. Prevent mud and sediment from flowing onto sidewalks and pavements.

4. If erosion occurs due to non-compliance with these requirements, restore eroded areas and arrange to have off-site areas cleaned and returned to pre-construction condition at no cost to Owner.

I. Sedimentation of Waterways On-Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.

J. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction at no cost to Owner.

K. Open Water: Prevent standing water that could become stagnant.

L. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

## 1.05 SUBMITTALS

A. See Section 01 3000 for submittal procedures.

B. Erosion and Sedimentation Control Plan:

1. Acknowledge intent to implement the approved Soil Erosion and Sedimentation Control Plans and provide the planned date not less than 7 days prior to anticipated start of clearing, grading, or other work involving disturbance of ground surface cover.

2. Include:

a. The approved Demolition and Soil Erosion and Sedimentation Control Plan.
b. Indicate any additional measures and associated costs that may be deemed necessary for Soil Erosion and Sedimentation Control. Additional measures must be approved by the Owner and Engineer, prior to implementation.
c. Where extensive areas of soil will be disturbed, include storm water flow and volume calculations, soil loss predictions, and proposed preventive measures.
d. Schedule of temporary preventive measures, in relation to ground disturbing activities.
e. Other information required by law.
f. Format required by law is acceptable, provided any additional information specified is also included.

3. Do not begin work without the approval of the Demolition and Soil Erosion and Sedimentation Control Plan by the agency having jurisdiction.

C. Certificate: Mill certificate for silt fence fabric attesting that fabric and factory seams comply with specified requirements, signed by legally authorized official of manufacturer; indicate actual minimum average roll values; identify fabric by roll identification numbers.

D. Identify a responsible person employed by the Contractor who will oversee the implementation of the Soil Erosion and Sedimentation Control Plans.

E. Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

F. Maintenance Instructions: Provide instructions covering inspection and maintenance for temporary measures that must remain after Substantial Completion.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Comply with the City and County Standard Details and requirements, as applicable.

## PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

## 3.02 PREPARATION

A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

## 3.03 SCOPE OF PREVENTIVE MEASURES

A. Do not discharge excavation ground water to the sanitary sewer, storm sewer, river, stream or similar natural or constructed feature.

B. Prevent construction runoff from entering the sanitary sewer, storm sewer, river, stream or similar natural or constructed feature by using silt fences or other suitable methods.

C. Protect surrounding soils from erosion.

D. Install sedimentation control devices prior to beginning Work. Maintain effective functioning soil erosion and sedimentation control devices at all times during the course of the Work.

E. If permanent erosion resistant measures have been installed, temporary preventive measures are not required.

F. Dust Control

1. Keep dust down at all times, including non-working periods.

2. Sprinkle soil at the site, haul roads, and other areas disturbed by operations or treat with dust suppressants.

3. Do not permit dry power-broom activities.

G. Linear Sediment Barriers: Made of silt fences.

1. Provide linear sediment barriers as shown on the Soil Erosion and Sedimentation Control Plans.

H. Storm Drain Inlet Sediment Traps: As detailed on drawings.

## 3.04 INSTALLATION

A. General: Install soil erosion and sedimentation control devices as shown on the Drawings, in accordance with manufacturer's recommendations, and in conformance with these specifications. Refer discrepancies to Engineer for resolution.

B. Silt Fences: Refer to the details and requirements on the drawings.

3.05 MAINTENANCE

A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.

B. Repair deficiencies immediately.

C. Silt Fences:

1. Promptly replace fabric that deteriorates unless need for fence has passed.

2. Remove silt deposits that exceed one-third of the height of the fence.

3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

D. Clean out temporary sediment control structures weekly and relocate soil on site.

E. Place sediment in appropriate locations on site; do not remove from site.

F. Refer to the details and requirements on the drawings.

3.06 CLEAN UP

A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Engineer.

B. Clean out temporary sediment control structures that are to remain as permanent measures.

C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

**END OF SECTION**

# SECTION 01 60 00

# PRODUCT REQUIREMENTS

## PART 1 – GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Transportation, handling, storage, and protection.

C. Product option requirements.

D. Substitution limitations and procedures.

E. Spare parts and maintenance materials.

1.02 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

1. Submit within 3 days after date of Agreement.

2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

E. Submittals must include a coversheet indicating the date, the submittal number, the specification section and title, the product, and the submittal type. Specific product types, colors, and other attributes are to be clearly marked on the product data by the Contractor.

## PART 2 – PRODUCTS

2.01 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

2.02 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.03 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Provide spare parts, maintenance, and extra products of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

## PART 3 – EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section and Division 0. If a conflict exists, Division 0 shall govern.

B. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

C. A request for substitution constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.

2. Will provide the same warranty for the substitution as for the specified product.

3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension which may subsequently become apparent.

5. Will reimburse Owner and Engineer for review or redesign services associated with re-approval by authorities.

D. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

E. Substitution Submittal Procedure:

1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution. Submit with the substitution request form at the end of this section.

2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.

3. The Engineer will notify Contractor in writing of decision to accept or reject request. The decision of the Engineer will be final.

## 3.02 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Properly dispose of packing materials off site.

## 3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products. Do not allow covering material to touch the ground.

G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

# Substitution Request Form

| DATE | SECTION # | PARA # | SPECIFIED PRODUCT | PROPOSED SUBSTITUTION |
|---|---|---|---|---|
| _____ | _____ | _____ | _____ | _____ |

NOTE: Complete technical data and literature for the proposed substitution must be included with the submission of this form.

| | | | |
|---|---|---|---|
| A. | Does substitution exceed, in any respect, the specified product/process? | _Y | _N |
| B. | Does substitution affect dimensions shown on Plans? | _Y | _N |
| C. | Does substitution affect other trades more than original product? | _Y | _N |
| D | Does warranty differ from that specified? | _Y | _N |
| E. | Does substitution affect cost to OWNER? | _Y | _N |
| F. | Does substitution affect the project schedule? | _Y | _N |
| G. | Has substituted product/process been implemented on the site? | _Y | _N |

If you indicated "Yes" to any of the items above, attach thorough explanation on your Company letterhead, as follows:

1. Explain any differences between proposed substitution and specified product.
2. Summarize experience with product and manufacturer in Project area.
3. If dimensions are affected by substitution, provide drawings and/or marked up project drawings indicating the dimensional changes.
4. If substitution affects structural design, submit stamped calculations.

The undersigned states that the function, appearance, and quality of the proposed substitution is equivalent or superior to the specified item, and that all information above and attached is true and correct.

Name: _____

Position: _____

Company: _____

_____

_____

_____

Telephone: _____

Signature: _____

Date: _____

**For use by ENGINEER:**

*Engineer's Determination:*

____ No Exceptions Taken Address:

____ Furnish as Corrected

____ Rejected

____ Returned Without Action

*Response Required:*

____ Revise and Resubmit

____ Resubmission Not Required

# SECTION 01 70 00

# EXECUTION AND CLOSEOUT REQUIREMENTS

## PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Cutting and patching.

D. Surveying for laying out the work.

E. Cleaning and protection.

F. Closeout procedures, except payment procedures.

1.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.

1. On request, submit documentation verifying accuracy of survey work.

2. Submit a copy of the As-Built site drawing signed by the Registered Land Surveyor that the elevations and locations of the work are in conformance with Contract Documents.

3. Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

4. Submit surveys and survey logs for the project record.

C. Cutting and Patching: Submit written request in advance of cutting or alteration which affects:

1. Structural integrity of any element of Project.

2. Integrity of weather exposed or moisture resistant element.

3. Efficiency, maintenance, or safety of any operational element.

4. Visual qualities of sight exposed elements.

5. Work of Owner or separate Contractor.

D. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.03 QUALIFICATIONS

A. For survey work, employ a land surveyor registered in Michigan and acceptable to Engineer. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

1.04 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Comply with the approved Soil Erosion and Sedimentation Control Plans.

C. Soil Erosion and Sediment Control: Comply with the Soil Erosion and Sedimentation Control Plans and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent soil erosion and sedimentation.

1. Minimize amount of bare soil exposed at one time.

2. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

D. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations and equipment.

1.05 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements. CALL MISS DIG (1-800-482-7171) THREE (3) DAYS BEFORE THE START OF PAVEMENT DEMOLITION AND/OR EXCAVATION AND RECEIVE CLEARANCE TO PROCEED. DO NOT PROCEED PRIOR TO RECEIVING CLEARANCE.

C. Coordinate space requirements, supports, and installation of electrical work which is indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

E. Coordinate completion and clean-up of work of separate sections.

F. Owner will have continuous occupancy of premises. Coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

## PART 2 – PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit the Substitution Request Form shown in Section 01 6000.

## PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached. Proof roll the existing aggregate base after pavement demolition with a fully loaded tandem dump truck. Identify and repair areas with less than adequate support from the subgrade and/or aggregate base to the satisfaction of the Engineer. Provide unit prices to cover the repair work.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations, including but not limited to edge drains around the perimeter of the proposed pavement.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. To begin cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Engineer of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Control datum for survey is that indicated on Drawings.

E. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

F. Promptly report to Engineer the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

G. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to the Engineer.

H. Utilize recognized engineering survey practices.

I. Establish a minimum of two permanent benchmarks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

J. Establish elevations, lines, and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.

2. Grid or axis for structures.

K. Periodically verify layouts by same means.

L. Maintain a complete and accurate log of control and survey work as it progresses.

3.04 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.05 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.

1. Verify that construction and utility arrangements are as shown.

2. Report discrepancies to Engineer before disturbing existing installation.

3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Remove existing work as indicated and as required to accomplish new work.

1. Remove items indicated on drawings.

2. Relocate items indicated on drawings.

3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish, if necessary, for successful application of new finish.

4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

C. Services (Including but not limited to Plumbing, Electrical, and Telecommunications): Remove, relocate, and extend existing systems to accommodate new construction.

1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.

2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.

3. Verify that abandoned services serve only abandoned facilities.

D. Protect existing work to remain.

1. Prevent movement of structures; provide shoring and bracing if necessary.

2. Perform cutting to accomplish removals neatly and as specified for cutting new work.

3. Repair adjacent construction and finishes damaged during removal work.

4. Patch as specified for patching new work.

E. Adapt existing work to fit proposed work:

1. When existing finished surfaces are cut so that a smooth transition with proposed work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer.

2. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Engineer review and request instructions.

F. Clean existing systems and equipment.

G. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

H. Do not begin new construction in alterations phases before demolition is complete.

I. Comply with all other applicable requirements of this section.

## 3.06 CUTTING AND PATCHING

A. Execute cutting and patching including excavation and fill to complete the work, demolition of pavement and selected areas of curb, to uncover work to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

B. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

C. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

D. Restore work with new products in accordance with requirements of Contract Documents.

E. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

## 3.07 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Protect existing and proposed storm sewer, catch basins and edge drains from accumulating debris. At the time of closeout provide a letter from an independent source stating that all storm lines, catch basins and under drains are clear, free draining, and free of debris.

C. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose of in a proper and legal manner off-site; do not burn or bury on site.

## 3.08 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Prohibit traffic from landscaped areas.

3.09 FINAL CLEANING

A. Use cleaning materials that are nonhazardous.

B. Clean Site; sweep paved areas, rake clean landscaped surfaces.

C. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in a proper and legal manner; do not burn or bury on site.

3.10 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities. Provide copies to Engineer and Owner.

B. Accompany Project Manager on preliminary inspection to determine items to be listed for completion or correction in Contractor's Notice of Substantial Completion.

C. Notify Engineer when work is considered ready for Substantial Completion Observation.

D. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Engineer's review.

E. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner-occupied areas.

F. Notify Engineer when work is considered finally complete.

G. Complete items of work determined by Engineer's final inspection.

H. Warranty time will not start until Work has been finally completed and accepted by the Owner.

I. Submit the following Closeout Documents to the Engineer:

1. As-Built drawings, indicating all work completed; final construction limits, quantities, and amounts; installation variations from the contract documents; etc.

2. Bound copy of all Shop Drawings, all required samples, and all other technical submittals (tests, results, test and safety procedures, etc.)

3. All required samples

4. Warranties and Guarantees

5. Permitting, Bond, Plan Review, and Inspection documentation, including payment and close-out documentation

6. Operation and maintenance manuals

7. Full Conditional Waiver

8. Full Unconditional Waiver of Lien and Sworn Statement

9. Consent of Surety to Final Payment

**END OF SECTION**

## SECTION 01 74 19

## CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

### PART 1 - GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.

E. Methods of trash/waste disposal that are not acceptable are:

1. Burning on the project site.

2. Burying on the project site.

3. Dumping or burying on other property, public or private.

4. Other illegal dumping or burying.

F. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, State, and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.

1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.

2. Submit Report on a form acceptable to Owner.

3. Landfill Disposal: Include the following information:

a. Identification of material.

b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.

c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.

d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.

4. Incinerator Disposal: Include the following information:

a. Identification of material.

b. Amount, in tons or cubic yards, of trash/waste material from the project delivered to incinerators.

c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.

d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.

5. Recycled and Salvaged Materials: Include the following information for each:

a. Identification of material, including those retrieved by installer for use on other projects.

b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.

c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.

d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.

e. Certification by receiving party that, materials will not be disposed of in landfills or by incineration.

6. Material Reused on Project: Include the following information for each:

a. Identification of material and how it was used in the project.

b. Amount, in tons or cubic yards.

c. Include weight tickets as evidence of quantity.

7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

## PART 2 - PRODUCTS

**NOT USED**

## PART 3 - EXECUTION

3.01 WASTE MANAGEMENT PROCEDURES

A. See Section 01 3000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. See Section 01 6000 for waste prevention requirements related to delivery, storage, and handling.

C. See Section 01 7000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

## 3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Engineer.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.

1. Pre-bid meeting.

2. Pre-construction meeting.

3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.

1. Provide containers as required.

2. Provide adequate space for pick-up and delivery and convenience to subcontractors.

3. Keep recycling and trash/waste bin areas neat and clean and clearly marked to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

**END OF SECTION**

# SECTION 02 01 20

# PROTECTING EXISTING UNDERGROUND UTILITIES

## PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Removing and plugging abandoned lines.
2. Compaction.
3. Alternative support methods.
4. Protecting thrust blocks.

1.02 SUBMITTALS

A. Submit the following shop drawings in accordance with Section 01 30 00 - Administrative Requirements.

1. Record drawings to include record survey coordinates and elevations.
2. Proposed locations for test pits.

1.03 QUALITY ASSURANCE

A. Comply with Section 01 40 00 - Quality Requirements.

1.04 PROJECT/SITE CONDITIONS

A. Proposed utilities will be indicated on the drawings, but the right is reserved by the Owner, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with existing utilities.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as indicated, or as specifically authorized by the Engineer, where existing utilities to remain must be removed, reconstruct utilities with new material of the same size, type, and quality as that removed.

B. Refer to the following sections for acceptable water main or sewer materials for DWSD owned utilities:

1. Section 33 35 00 Sanitary Sewerage
2. Section 33 43 00 Storm Drainage

C. Compression Coupling: ASTM C425, compression couplings. Use at least two lengths of pipe in crossing the trench section.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

A. If utility work is located in the City Right of Way

1. Notify MISS DIG (811) at least 3 days but not more than 14 calendar days before digging operations are scheduled to begin. Do not dig unless all utilities have been marked by MISS DIG (811).

2. Notify Detroit Department of Public Works, at (313) 628-5641, for locating traffic signal conduit, at least 3 days prior to construction. Alternate contact at, Detroit Department of Public Works, at (313) 628-5640.

B. If utility work is located on private property

1. Notify Owner or Owner’s representative of upcoming utility work.

C. Test Pits: Excavate test pits to field verify the locations, depth of bury, diameter, and pipe material of existing underground utilities at crossings and at tie-in points before ordering materials or commencing excavation. Immediately notify the Engineer if conflicts are encountered.

### 3.02 PREPARATION

A. Where utilities are parallel to or cross work, but do not conflict with work, notify the utility owner at least 3 days in advance of construction at the crossing. Coordinate the construction schedule with the utility owner.

### 3.03 PROCEDURES

A. Protect in Place: Protect utilities in place, unless abandoned, and maintain the utility in service, unless otherwise indicated or specified.

B. Damage to Utilities to Remain: If existing utilities to remain are damaged by current construction, immediately notify utility owner, and repair to owner's satisfaction. If utilities are found damaged, immediately notify the utility owner.

C. Cut and Plug Ends: Cut abandoned water lines and plug the ends. Plug storm drains and sewers with an 8-inch wall of brick and mortar. Cap waterlines with a cast-iron cap or install a 3-foot-long concrete plug. Dispose of the cut pipe as unsuitable material. Abandoned lines shall be filled with flowable fill for their entire length in accordance with Section 31 23 23.33 - Flowable Fill, and as directed by Engineer.

D. Remove and Reconstruct: Where so indicated in the drawings or as required by the Engineer, remove the utility and after placement of the new water line, reconstruct the existing utility with new materials. Provide temporary service for the disconnected utility.

## 3.04 COMPACTION

A. Protecting Existing Utilities:

1. Backfill and compact under and around utilities. Backfilling shall conform to Section 31 23 23.13 - Soil Backfilling.

2. Where compaction cannot adequately be performed around utility due to the presence of encroaching existing utilities, utilize flowable fill or Class C Concrete.

## 3.05 ALTERNATIVE METHODS

A. Reinforced Concrete Beam: Support utilities by a reinforced concrete beam to prevent settlement of the utility line after construction and protect existing utilities.

B. Concrete Support Wall: Support utilities by a concrete support wall to prevent settlement of the utility line after construction and protect existing utilities.

C. Structural Steel Beam: Support utilities by a structural steel beam to prevent settlement of the utility line after construction and to protect existing utilities.

## 3.06 PROTECTION OF THRUST BLOCKS

A. The Contractor's attention is called to thrust blocks delineated in the drawings for waterlines and sewer force mains throughout the project whose thrust is in the direction of the new excavation and, therefore, may be affected by the construction. Protect thrust blocks on existing waterlines or sewer force mains in place or shore to resist the thrust by a means accepted by the Engineer **and** reconstruct. If the thrust blocks are exposed or rendered to be ineffective in the opinion of the Engineer**,** reconstruct them to bear against firm unexcavated or backfill material.

1. Provide firm support by backfilling affected portion of the trench for a distance of 2 feet on each side of the thrust block to be reconstructed from the pipe bedding to the pavement subgrade with either:

   a. Flowable fill. See Section 31 23 23.33 - Flowable Fill.

   b. Native material compacted to a relative compaction of 95 percent. Comply with Section 31 23 16.13 – Trenching and Section 31 23 23. 13 – Soil Backfilling.

2. Excavate the backfill material for construction of the thrust block.

3. Test compaction of the backfill material before pouring any concrete thrust block. Concrete shall conform to Section 03 30 00 - Cast-in-Place Concrete.

## 3.07 CLOSEOUT ACTIVITIES

A. Provide in accordance with Section 01 70 00 - Execution and Closeout Procedures.

B. Replace in kind street improvements, such as curbs and gutters, barricades, traffic islands, signalization, fences, signs, etc., that are cut, removed, damaged, or otherwise disturbed by the construction.

**END OF SECTION**

# SECTION 02 41 00

# DEMOLITION

## PART 1 – GENERAL

1.01 SUMMARY

A. Furnish all materials, labor, equipment, etc., to demolish the existing site features as shown on the Drawings.

B. Demolition of the site features will include paved parking areas, sidewalks, driveways, and/or curb, fencing, bollards, grass-covered areas, landscape materials, and abandon/removal of underground utilities as depicted on the Drawings.

C. Locate, cap and/or plug, or remove utility connections in accordance with Specifications and the requirements of the agency having jurisdiction or the appropriate utility company as depicted on the Drawings. Repair areas outside the Site to their original condition.

1.02 REFERENCES

A. Permits issued or required by governmental agencies.

B. National Electric Code, Michigan Occupational Safety & Health Administration (MIOSHA), Michigan Department of Transportation (MDOT), Wayne County, and City of Detroit codes and ordinances.

C. MIOSHA Part 603 (Lead Exposure in Construction).

D. MIOSHA Part 690 (Silica in Construction).

1.03 PERMITS

A. It is the Contractor's responsibility to be aware of, obtain, and comply with all applicable permits needed to complete the Project. Permits are to be paid by the Contractor. All permits must be obtained in a timely manner to not impede or delay Work.

1.04 SUBMITTALS

A. See Section 01 30 00 – Administrative Requirements

B. Required Permits

C. Demolition Work Plan

1. Prior to proceeding with the demolition, removal, and disposal work, submit a Demolition Work Plan that includes:

    a. Means, methods, and procedures proposed for the accomplishment of the demolition, removal, and disposal work.
    b. Detailed description of the methods and equipment to be used for each operation and the sequence of operations.
    c. Name and location of the disposal facilities of all removed materials and soils.
    d. Detailed schedule including activities and activity duration.
    e. Inventory of items to be removed and salvage and inventory of items to be removed by Owner.

D. Site-specific Health and Safety Plan.

E. List of emergency after-hours telephone numbers.

F. Environmental Emergency Response Plan for addressing environmental emergencies, such as equipment fluid or fuel spills.

G. Notice of completion of hazardous materials abatement including removal and disposal of asbestos-containing materials, liquid industrial wastes, universal waste, PCBs and other hazardous materials and contents of the structure.

H. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by demolition operations.

1.05 WORK REQUIRED

A. Demolition of Pavements

1. Demolish, remove, transport, and dispose pavements including parking areas, driveways, sidewalks, and curb unless specified otherwise on the Drawings.

    a. The protection of adjacent structures, pavements, fences, and sidewalks surrounding the Sites is the responsibility of the Contractor.

B. Demolition of Ancillary Improvements

1. Complete removal of fencing, bollards, grass-covered areas as depicted on the drawings.

2. Locate, cap and/or plug utility connections in accordance with Specifications and the requirements of the authority having jurisdiction or the appropriate utility company. Repair areas to remain and areas outside the Site to remain to their original condition.

a. Remove, load, haul, and dispose existing utilities within the Site.
b. Underground utilities are to be cut and capped or removed as depicted on the Drawings.

C. Collect appropriate samples for landfill disposal of excess soils, manifesting, transportation, and disposal. The cost for removal and disposal of excess soils from the Site is incidental to the Project.

1. Analytical testing as required under this Section is to be paid for by the Contractor.

2. Employ a laboratory for testing and analysis. The laboratory must routinely provide analytical services acceptable to the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

1.06 SITE CONDITIONS

A. Minimize production of dust due to clearing operations.

B. Maintain sewers to remain and surface drainage within the limits of the Site and immediately adjacent to the Site free to discharge during demolition and restoration operations. Immediately repair, replace, or clear drainage facilities that are not designated to be abandoned but are damaged or whose drainage function is impaired by Contractor operations at no cost to the Owner.

C. Locations of existing utilities shown on the Plans are approximate; coordinate Work with utility companies; notify before starting Work and comply with their requirements to protect existing facilities; and obtain required permits. Contact MISS DIG and/or the public agency or utility having jurisdiction to request verification of utilities at the Site.

D. Hand dig to expose utility lines prior to excavation to determine if conflicts with the proposed improvements exist. Contractor is responsible for the cost of relocating items as required to resolve conflicts. Contact the Owner's Representative for any utility relocation.

E. Protect sewers, drainage structures, manholes, water gate wells, hydrants, water mains, electrical transformers, utility poles, overhead lines, underground conduits, underground cables, pavement, and other improvements that are outside the limits of the Work area or are to remain. Repair or replace structures and improvements outside the limits of the Work area damaged by Contractor operations at no cost to the Owner.

F. Do not disrupt public utilities without permit from authority having jurisdiction. Unless otherwise indicated, maintain flow in existing utilities by diversion, pumping, fluming, relocation, or by other methods. At the conclusion of demolition, return and reinstall diverted and relocated utilities to their original condition.

G. Comply with MIOSHA regulations and other applicable safety requirements.

H. The Owner will provide utility information on private property for the contractor's convenience. Contractor to field verify all information.

1. Electrical Disconnection

a. Verify that on-site electrical wiring entering structures to be demolished is disconnected and de-energized prior to proceeding with demolition operations.
b. Protect electrical service to nearby buildings that could be damaged by demolition operations.

2. Sewer Disconnection

a. Locate and bulkhead all sewer connections from the structure prior to proceeding with the Work.
b. Perform work in accordance with agency having jurisdiction's requirements.
c. Protect sewer service to nearby buildings that could be damaged as a result of the demolition operations.

1.07 GENERAL REQUIREMENTS

A. The Work includes demolition and removal of resulting debris.

B. No explosives may be used on the Site.

C. Remove debris from the Site daily, unless otherwise directed, to avoid accumulation at the Site. Materials that cannot be removed daily shall be stored in areas approved by the Owner's Representative.

D. In the interest of safety, perform the Work with regard to the protection of personnel and properties and the elimination of dust and windblown debris.

E. Dust Control and Dust Monitoring

1. Take all necessary means and procedures to control dust and avoid airborne dust from impacting the surrounding properties because of demolition operations.

F. Protection of Personnel

1. Continuously evaluate the conditions of the items being demolished and take immediate action to protect all personnel working in and around the Sites.

2. Ensure that no elements determined to be unstable are left unsupported.

3. Place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition Work performed under this Contract.

G. Protection of Existing Work

1. Protect existing nearby buildings, pavements, streets, sidewalks, and parking lots from damage resulting from the demolition process.

2. Correct defects, deterioration, and cracking that occurs during this Project as a result of the demolition.

3. Ensure that corrections to damage caused during this Project are to the satisfaction of the Owner's Representative.

4. Prior to the start of Work on this Project, document existing conditions of nearby structures, parking lots, fences, dumpster enclosure, sidewalks, etc. These documents may consist of photographs, videotapes, and written descriptions with respect to deterioration, cracks, and deferred maintenance. Provide copies of the condition reports to the Owner's Representative.

5. At the completion of the Project, Owner's Representative will conduct a follow-up condition survey to document any changed conditions. The Contractor is responsible for subcontracting with qualified restoration contractors to perform the necessary repairs to the damaged nearby structures, parking lots, sidewalks, etc. to the satisfaction of the Owner's Representative.

H. Ownership of Removed Materials

1. Remove and dispose of materials and debris in a fashion that complies with all local, state, and federal codes and regulations.

2. Items and materials ownership transfers to the Contractor when they are physically removed from the Site.

I. Sequencing and Scheduling

1. Perform the Work considering that any asbestos-containing materials (ACM), PCB-impacted materials, universal wastes, and contaminated materials and liquids and containers, or as directed by the Owner's Representative are to be removed or cleaned-up prior to demolition.

2. Install soil erosion and sediment control devices prior to demolition.

3. Install construction fencing and screening prior to demolition.

J. Burning and Use of Explosives

1. Burning waste and debris materials at the Site is prohibited.

2. The use of any explosive material at the Site is prohibited.

1.08 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI A10.6 and NFPA 241.

## PART 2 – PRODUCTS

**NOT USED**

## PART 3 – EXECUTION

3.01 DUST CONTROL

A. Employ engineering controls and watering/misting operations to prevent emission of dust and migration of airborne materials offsite to surrounding properties.

B. Watering

1. Constant watering of the Site is required to prevent dust emissions during the demolition and removal operations in accordance with the Specifications.

2. The water for dust control may be available for use from the fire hydrants located in the area.

3. Installation and removal of any temporary connections, including necessary safety devices and controls, will be at no cost to the Owner.

4. Do not create hazardous or objectionable conditions such as ice, flooding, pollution, and electrical shock.

C. Cover/protect all nearby drop inlets/manhole covers and those to be temporarily used during demolition to prevent silting/plugging of sewer lines.

## 3.02 DEMOLITION AND REMOVAL

A. Utilities

1. Cut and cap underground utility lines such as for electric, telephone/cable, alarms, storm sewers, and sanitary sewers and as required by the agency having jurisdiction and or utility owners or as depicted on Drawings.

2. Locate and bulkhead all sewer connections from the Site prior to proceeding with demolition operations. Provide the exact location(s) of all such bulkheads to the Owner's Representative.

3. Remove utilities in accordance with the Specifications, Plans, and/or agency having jurisdiction requirements.

B. Pavement

1. Where concrete and bituminous pavement is required to be removed as noted on the Drawings, include removing and disposing of pavement, integral and separate curbs (and gutters), and sidewalks. Remove pavement to an existing joint or sawcut parallel to the existing pavement joints.

2. Perform saw cutting with a power-driven concrete saw.

3. Provide minimum depth of saw as necessary to prevent damage to adjacent pavement to remain.

4. Old pavement with a concrete or bituminous cap is considered as one pavement, whether or not there is a separation layer of earth, aggregate, or bituminous material between the old material and the cap.

5. Remove and replace pavement that is damaged by the Contractor in areas beyond the designated removal limits at no additional cost to the Owner.

C. Hazardous Contaminated Materials

1. Notify the Owner's Representative immediately of potentially hazardous or contaminated materials, not specified, which are unearthed during the demolition and removal operations.

2. Perform demolition and removal work in compliance with the MIOSHA Part 603: Lead Exposure in Construction and Part 690: Silica in Construction.

3. Take care to prevent the mixture of non-hazardous debris and waste materials with regulated hazardous materials. Non-hazardous materials must also be prevented from coming in contact with materials identified as being hazardous, so as to prevent increasing the volume of hazardous materials (by contact).

## 3.03 DEBRIS DISPOSAL

A. General

1. Remove from the Site the site features to be demolished, debris, wastes and unsatisfactory materials resulting from this Work, unless otherwise specified or directed by the Owner's Representative.

2. Conform to federal, state, and local requirements for all disposals.

3. Document all removed materials by manifests and disposal facility tickets with copies given to the Owner's Representative 48 hours after removal from the Site.

4. Only use disposal sites licensed to accept the type of material being disposed.

## 3.04 QUALITY CONTROL

A. Establish and maintain a quality control system for contract requirements and maintain records of its quality control for all operations performed, including, but not limited to, the following:

1. Electrical, telephone/cable, alarm, gas, sanitary and storm sewer disconnection
2. Noise and vibration control
3. Demolition, removal, and cleanup
4. Observance of safety regulations
5. Observance of environmental regulations
6. Protection of nearby occupied buildings and properties
7. Air and Dust controls
8. Soil Erosion and Sediment Controls
9. Waste disposal

**END OF SECTION**

# SECTION 02 41 16

# REMOVING/ABANDONING UTILITIES AND STRUCTURES

## PART 1 - GENERAL

1.01 SUMMARY

A. This work consists of removing or abandoning storm sewers, catch basins, or other underground utilities, as required. Salvaging, storing, disposing of removed materials, and the backfilling and compacting of excavated sites are also included.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Concrete: Per Section 03 30 00.

B. Backfill: Per Section 31 23 23.13.

C. Flowable Fill: Per Section 31 23 23.33.

## PART 3 – EXECUTION

3.01 REMOVAL – SEWER

A. Excavate and remove the existing sewer as shown in the Drawings. Bulkhead the opening in sewers or structures where the existing sewer has been removed. Where removal of existing sewer is occurring in essentially the same location as a new sewer or structure, the removal of the existing sewer is incidental to the project.

3.02 REMOVAL- STRUCTURES

A. Excavate and remove structures as shown in the Drawings. Bulkhead the ends of any sewers remaining in place. Backfill the completed work as specified in Section 31 23 23.13. Removal of existing structures is incidental to the project if a new structure or sewer is being constructed in essentially the same location.

3.03 REMOVAL/ABANDONING – ALL

A. Any mineral mass of 1 cubic yard or larger, encountered in the removal or abandoning, in whole or in removing structures and piping, as required hereunder, will be considered incidental to the work defined herein. If removal is pursued, Contractor agrees that it is reasonable to expect structure bases and other elements or appurtenances to be encountered in such removal.

**END OF SECTION**

# SECTION 03 11 00

# CONCRETE FORMWORK

## PART 1 – GENERAL

1.01 SCOPE OF WORK

A. This Section includes formwork requirements for cast-in-place concrete, complete with furnishing, preparation, installation, coating, protection, adjustment, removal, and accessories.

1.02 RELATED REQUIREMENTS

A. Section 03 15 00 – Concrete Accessories

B. Section 03 20 00 – Concrete Reinforcement

C. Section 03 30 00 – Cast-in-Place Concrete

D. Section 03 35 00 – Concrete Finishing

E. Section 03 39 00 – Curing

F. Section 31 22 00 – Grading

G. Section 31 23 16 – Excavation

H. Section 31 23 23.16 – Soil Backfilling

I. Section 31 23 23.23 – Compacting

J. Other sections of the specifications also apply to the extent required for proper performance of this work.

1.03 REFERENCES

A. American Concrete Institute (ACI)

1. ACI 347 Guide to Formwork for Concrete.

1.04 DESIGN STANDARDS

A. Design the formwork for the loads, lateral pressure, and allowable stresses outlined in ACI 347 “Guide to Formwork for Concrete” and for design considerations, wind loads, allowable stresses, and other applicable requirements of the local building code.

B. Provide formwork that is true in every respect to produce hardened concrete to the required shape, size, grade, and alignment as indicated on the Contract Drawings, and

of sufficient strength, bracing and rigidity to maintain their position and shape under the loads and operations incidental to placing and curing the concrete, as well as all other forces resulting from the movement of the forms. The forms must be mortar tight at the time concrete is placed in them and must be so constructed that the surfaces of the finished concrete will be reasonably free from ridges, fins, offsets, or similar defects. Provide adequate and suitable means for removing the forms without injury to the surfaces or edges of the finished concrete.

1.05 ALLOWABLE TOLERANCES

A. Construct formwork such that the hardened surfaces conform to the tolerance limits of ACI 347, except as modified below:

1. Variation from plumb in lines and surfaces of piers, walls, or columns

   (a) In any 10 feet (3 m) of length: 1/4 inch (5 mm)

   (b) Maximum for entire length: 1 inch (25 mm)

2. Variation from the level or from the grades

   (a) In any 10 feet (3 m) of length: 1/4 inch (5 mm)

   (b) Maximum for entire length: 3/4 inch (20 mm)

3. Variation of distance between walls, columns, and beams

   (a) In any 10 feet (3 m) of distance: 1/4 inch (5 mm)

   (b) Maximum for entire distance: 1 inch (25 mm)

4. Variation of the linear lines from established position as indicated on the Plan

   (a) In any 20 feet (6 m) of length: 1/2 inch (10 mm)

   (b) Maximum for entire length: 1 inch (25 mm)

5. Variation in sizes and locations of sleeves, floor openings, and wall openings

   (a) Minus: 1/4 inch (5 mm)

   (b) Plus: 1/2 inch (10 mm)

6. Variation in cross-sectional dimensions of columns and beams and thickness of slabs and walls

   (a) Minus: 1/4 inch (5 mm)

   (b) Plus: 1/2 inch (10 mm)

7. Variations of footing dimensions from plan dimensions

(a) Minus: 1/2 inch (10 mm)

(b) Plus: 2 inches (50 mm)

(c) Thickness ± 5%, up to maximum of 1 inch (25 mm)

1.06 SUBMITTALS

A. See Section 01 30 00 for submittal procedures.

B. Submit Manufacturer's literature for form coating.

C. Submit formwork layout plans, supports, design data, and procedures.

D. Submit Manufacturer's literature for type of form ties.

1.07 STORAGE AND HANDLING

A. Store and handle form coating to prevent contamination of coating in accordance with Manufacturer's recommendations.

1.08 SEQUENCING

A. Sequence installation of formwork with the work of Section 03 15 00 Concrete Accessories, Section 03 20 00 Concrete Reinforcement, and Section 03 30 00 Cast-in-Place Concrete.

## PART 2 – PRODUCTS

2.01 FORMS – GENERAL

A. Use forms that conform to ACI 347. Fabricate with facing materials that produce the specified tolerance requirements of Item 1.5; produce true surfaces, sharp corners, and true lines; and are free of offsets, ridges, bulging, waves, and concave or convex areas.

2.02 FORM MATERIALS

A. Lumber: Straight, uniform width and thickness, free from knots, offsets, holes, dents, warpage, and other surface defects.

B. Plywood: Douglas Fir, exterior Grade B or better for face adjacent to concrete.

C. Metal forms: Smooth metal plate, free of surface irregularities.

D. Chamfer Strips: Clear white pine, surface against concrete planed, one inch (25 mm) bevel width or cant strip.

2.03 FORM COATING

A. Non-staining form oil or other mineral oil which will neither discolor nor otherwise injuriously affect the concrete.

2.04 FORM TIES

A. Permanently embedded body type with removable end cones on outer ends, permanently embedded portion 1 inch (25 mm) back from concrete face.

2.05 LAYOUT

A. Use regular and uniform pattern; long dimension of panels vertical; joints horizontal, vertical, and aligned; form ties uniformly spaced and aligned in horizontal and vertical rows.

## PART 3 – EXECUTION

3.01 PREPARATION

A. Do not reuse forms if there is any evidence of surface wear and tear or defects which would impair the quality of the surface. Clean all surfaces of forms and embedded materials of any mortar from previous concreting and of all other foreign material or water before coating is placed in them.

B. Coat forms in accordance with manufacturer's recommendations before the form or reinforcement is placed in final position. Remove surplus coating on form surfaces, or any coating on reinforcing steel and construction joints before placing concrete.

3.02 INSTALLATION OF FORMS

A. Tighten forms to prevent loss of mortar from the concrete, set true to the lines and elevations indicated on the Plans and tie and brace to remain true during and after concrete placement within tolerances of Paragraph 1.05 of this section. Promptly remove and replace forms found deficient by the Engineer.

B. Do not allow wooden spreaders to remain in the concrete. Do not use metal within 1 inch (25 mm) of any surface.

C. Place chamfer strips in forms to bevel all corners, edges, joints, and other structural elements exposed to view, including use of dummy chamfer and false joints to provide neat and uniform appearance. Provide exposed corners and edges with one-inch x one-inch 45-degree chamfers (25 mm x 25 mm x 45 degree), unless otherwise indicated on the Drawings.

D. Provide temporary openings at the base of wall forms and at other points, as required, when necessary to facilitate cleaning and inspection immediately before depositing concrete.

E. Secure wedges used for final alignment in position and secure items to be embedded in concrete.

F. Prepare forms for keyways before pouring concrete. Rigidly secure keyway forms in slab edges and vertical wall joints in place before the concrete is poured. Forms for keyways for horizontal joints in walls may be placed at the conclusion of the pour, provided proper provision is made for obtaining and holding the full depth and form of the keyway.

G. Inspect wall forms and any deep formwork before closing the form, as well as immediately prior to placing concrete.

## 3.03 ADJUSTMENT OF FORMS

A. Provide means of adjustment to permit realignment or readjustment of shores if excessive settlement occurs.

B. A pair of wedges may be used at the top or bottom of shores, but not at both ends, to facilitate vertical adjustment, to correct uneven settlements, or to facilitate dismantling of the formwork.

C. Screw jacks for pipe shores or scaffold-type shoring may be used at both top and bottom if they are secured by the shore or scaffold leg against loosening or falling out, to avoid lateral deflections.

D. During and after concrete placement, but before initial set of the concrete, use telltale devices to check the elevations, camber, and plumbness of formwork systems. Make appropriate adjustments, where necessary. If, during construction, any weakness develops and the formwork shows any undue settlement or distortion, stop the work, remove the affected construction if permanently damaged, and strengthen the formwork.

## 3.04 REMOVAL OF FORMS

A. Do not remove or disturb forms, wedges, or shoring until the concrete has attained sufficient strength to safely support all superimposed, temporary construction, and dead and live loads.

B. Do not allow excessive deflection or distortion of the concrete when forms or shoring are removed. Remove forms in an orderly fashion, with care to avoid surface gouging, corner or edge breakage, or other damage to the concrete surface or physical property, and without impact or shock, to permit the concrete to carry its share of the loads gradually and uniformly. Do not impair the safety and serviceability of the structure or concrete members during form removal.

C. Keep forms and shoring in the formwork used to support the weight of concrete in beams, slabs, and other structural members in place a minimum of 14 days or until the concrete has reached a minimum cylinder strength of 2,500 psi (17 MPa) or 2/3 of the specified compressive strength, whichever is higher. Base the cylinder strength on test specimens cured in the field under conditions which are not more favorable than the most unfavorable conditions for the portions of the concrete which the test specimens represent, as determined in accordance with Section 03 30 00, Cast-in-Place Concrete.

D. Keep formwork for columns, walls, and other vertical members in place a minimum of two (2) days. Where such formwork also supports the formwork of beams and slabs, the removal times of the latter will govern. Remove face and edge forms as soon as practicable and permitted by the Engineer to facilitate effective repair of voids or broken corners before the surface has dried.

E. Do not remove forms and shoring in the formwork without the approval of the Engineer. The minimum in-place times are for ordinary conditions and represent cumulative number of days, not necessarily consecutive, after the concrete was placed, during which the temperature of the air surrounding the concrete is above 50 degrees F (10 degrees C). The times may be increased or decreased as directed by the Engineer, dependent on air temperatures, cement type, concrete additives, or other conditions of the Work in accordance with ACI 347.

3.05 RE-SHORING

A. When removing forms before structural members are strong enough to carry dead load and/or construction loads, install re-shoring to ensure safe distribution of loading. Provide form removal and shoring in accordance with ACI 347 recommendations. Plan re-shoring operations in advance and submit to the Engineer for review. Do not permit construction loads on the new construction during re-shoring. Place re-shoring as soon as practicable after form removal, but in no case later than the end of the working day on which form removal occurs. Keep re-shoring in place until the concrete has acquired the required strength.

**END OF SECTION**

# SECTION 03 15 00

# CONCRETE ACCESSORIES

## PART 1 – GENERAL

1.01 SCOPE OF WORK

A. This Section includes joint fillers, joint sealants, waterstops, concrete anchors, and miscellaneous items to be embedded in concrete for work of Sections 03 20 00 Concrete Reinforcement and 03 30 00 Cast-in-Place Concrete.

1.02 RELATED REQUIREMENTS

A. Section 03 11 00 – Concrete Formwork

B. Section 03 20 00 – Concrete Reinforcement

C. Section 03 30 00 – Cast-in-Place Concrete

D. Other sections of the specifications also apply to the extent required for proper performance of this work.

1.03 REFERENCES

A. ASTM International (ASTM)

ASTM D994 Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
ASTM D1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)
ASTM D1752 Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D6153 Standard Specification for Materials for Bridge Deck Waterproofing Membrane Systems
ASTM D6690 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
ASTM A36 Standard Specification for Carbon Structural Steel
ASTM F593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
ASTM F594 Standard Specification for Stainless Steel Nuts

B. U.S. Army Corps of Engineers Handbook for Concrete and Cement (CRD)

CRD C513 Specifications for Rubber Waterstops
CRD C572 Specifications for Polyvinylchloride Waterstop

1.04 SUBMITTALS

A. See Section 01 30 00 for submittal procedures.

B. Submit certified manufacturer's affidavits for expansion joint filler, joint sealant, and waterstops to verify compliance with this Specification.

C. Submit a schedule of concrete placement and indicate locations of proposed construction and expansion joints. This schedule is subject to the approval of the Engineer.

D. Submit samples of waterstops, joint fillers, and waterproofing membranes.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Comply with sealant manufacturer's requirements for sealant placement temperatures.

1.06 SEQUENCING

A. Sequence installation of miscellaneous embedded items with the work of Section 03 11 00 Concrete Formwork, Section 03 20 00 Concrete Reinforcement, and Section 03 30 00 Cast-in-Place Concrete.

## PART 2 – PRODUCTS

2.01 JOINT FILLER

A. Preformed Expansion Joint Filler for Concrete (Bituminous Type): ASTM D994.

B. Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types): ASTM D1751.

C. Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Concrete: ASTM D1752.

2.02 JOINT SEALANTS

A. Concrete Joint Sealant: Hot Poured Elastic Type: ASTM D6690.

B. Joint Sealants: Hot Poured, Elastomeric Type, for Portland Cement Concrete Pavements: ASTM D3406.

2.03 WATERSTOPS

A. Type: Size and type indicated on the Plans and conforming to CRD C572 polyvinyl chloride (PVC) or CRD C513 styrene butadiene rubber (SBR). Use flat ribbed type in joints in walls and slabs where shown on the plans. Use center bulb type in expansion joints.

B. Use hydrophilic waterstops made from sodium bentonite, chloroprene rubber, or butyl rubber strip waterstops in environmental concrete construction and in all cases where new concrete meets existing concrete and where shown on Contract Drawings.

2.04 CONCRETE ANCHORS

A. Select type and size to achieve required loading capacity using information provided by manufacturer. If required type is not indicated, select type appropriate to conditions and items being fastened. If required loading capacity is not indicated on the drawings, determine required loading capacity in accordance with accepted engineering principles and as required by applicable codes. Submit the design for Engineer's review and approval.

B. Use recommended and appropriate safety factors and load reduction factors. Maintain critical edge distance and spacing per manufacturer's recommendations for all anchors. Provide tamper-proof hardware where indicated on the Plans

2.05 WATERPROOFING MEMBRANE

A. Use a polymeric waterproofing membrane laminated to a polymeric, woven carrier fabric conforming to the requirements ASTM D6153, Type III waterproofing membrane systems.

Subject to compliance with requirements, use "MEL-DEK" produced by W. R. Meadows, Inc., Hampshire, Illinois, or an approved equivalent.

## PART 3 – EXECUTION

3.01 PREPARATION

A. Inspect the locations and surfaces to receive joint filler, joint sealer, waterstops, waterproofing membrane, or miscellaneous embedded items and correct defects or conflicts which will affect the proper performance of the item to be placed.

B. Provide accessories to be embedded into concrete that have contact surfaces free of dirt, curing compound, protrusions of hardened concrete, or any other foreign material which would affect bond with concrete.

C. Prime surfaces in accordance with manufacturer's instructions and recommendations.

## 3.02 INSTALLATION OF JOINT FILLERS

A. Details, including materials and methods of installation of joint fillers will be as indicated on the Plans and as approved by the Engineer. Follow manufacturer's recommended procedures during installation.

## 3.03 INSTALLATION OF JOINT SEALANTS

A. Do not seal joints when the sealant, air, or concrete substrate temperature is less than 40 degrees F (4 degrees C), unless otherwise approved, in writing, by the Engineer. Install bond breaker and backup material, where required, as indicated on the Plans. If not indicated on plans, install at locations in accordance with the requirements and recommendations of the material manufacturers.

## 3.04 INSTALLATION OF WATERSTOPS

A. Size waterstops to be maximum practicable length to minimize joints.

B. Follow manufacturer's recommended installation procedures.

C. Position waterstops as indicated on the Contract Drawings in a manner to permanently retain flexibility. Avoid contact of waterstop with reinforcement. Tie the waterstop securely in accordance with manufacturer's recommendations to avoid folding of waterstop during concrete placement.

D. Perform splice in length or at intersections by heat sealing and in accordance with manufacturer's recommendations.

E. Reform splices with a remolding iron, with ribs or corrugations to match the pattern of the waterstop. When cooled and bent by hand in as sharp as an angle as possible, the splice will show no sign of separation. Submit a field spliced waterstop sample for Prime Consultant's review and approval.

F. For hydrophilic waterstops, remove all contaminants such as dust, oil, and laitance from concrete surface before adhering waterstop. Apply compatible adhesive to smooth surfaces. Where concrete surface is left rough, use a single component swellable sealant to ensure that a smooth bonding surface will result. Splice hydrophilic waterstops by cutting ends square and joining with cyanoacrylate type adhesive. Hold waterstops in place using concrete nails.

G. Provide support and protection of the waterstops during the progress of the work. Replace or repair any waterstop punctured or damaged by the Contractor and at no additional expense to the Owner. Thoroughly consolidate the concrete in the vicinity of the waterstop. Provide suitable guards to protect exposed projecting edges and ends of partially embedded waterstops from damage when concrete placement has been discontinued.

## 3.05 CONCRETE ANCHORS

A. Do not begin installation until substrates have been properly prepared and are suitable to receive anchors.

B. Clean surfaces thoroughly prior to installation. Further prepare surfaces as recommended by the manufacturer.

C. Install concrete anchors in accordance with manufacturer's instructions and recommendations and as required by applicable codes, including center to center and edge distance requirements. Neatly anchor applied items, with items mounted plumb and level, unless otherwise indicated.

D. The Prime Consultant reserves the right to require the anchor manufacturer's representative to demonstrate proper installation procedures for post-installed anchors and to observe Contractor's installation procedures, at no extra cost to Owner. The Engineer reserves the right to require pullout or shear tests to determine adequacy of anchors, at no extra cost to Owner.

## 3.06 INSTALLATION OF WATERPROOFING MEMBRANES

A. Do not install waterproofing membranes when the membrane, air, or concrete substrate temperature is less than 40 degrees F (4 degrees C), unless otherwise approved, in writing, by the Engineer. Do not install waterproofing membranes during or closely following periods of precipitation. If not indicated on plans, install at locations in accordance with the requirements and recommendations of the material manufacturer, including surface preparation, use of reinforcing strips, conditioning, application, inspection and repair, and precautions.

## 3.07 MISCELLANEOUS EMBEDDED ITEMS

A. Place all sleeves, inserts, anchor bolts, and other embedded items required for adjoining work or for its support prior to concreting.

B. Position embedded items accurately and support against displacement. Temporarily fill voids in sleeves, inserts, and anchor slots with readily removable material to prevent the entry of concrete into the voids.

C. When acceptable to the Engineer, threaded rod anchors may be used in locations where cast-in-place anchor bolts are specified. The embedment depth for threaded rod anchors must be at least 15 rod diameters.

**END OF SECTION**

## SECTION 03 20 00

## CONCRETE REINFORCEMENT

### PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Reinforcing steel for cast-in-place concrete.

B. Supports and accessories for steel reinforcement.

1.02 RELATED SECTION

A. Section 32 1313 - Concrete Pavement

1.03 REFERENCES

A. ACI Specification 301, “Specifications for Structural Concrete,” American Concrete Institute.

B. ACI Specification 318, “Building Code Requirements for Structural Concrete and Commentary,” American Concrete Institute.

C. ACI SP-66, “ACI Detailing Manual,” American Concrete Institute.

D. ASTM Standard A185, “Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete,” ASTM International.

E. ASTM Standard A615, “Standard Specification for Deformed and Plain Carbon-Steel Bars for Reinforcement,” ASTM International.

F. ASTM Standard A706, “Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement,” ASTM International.

G. ASTM Standard A996, “Standard Specification for Rail-Steel and Axle-Steel Deformed bars for Concrete Reinforcement,” ASTM International.

H. ASTM Standard A1064, “Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete,” ASTM International.

I. CRSI DA4, “Manual of Standard Practice,” Concrete Reinforcing Steel Institute.

J. CRSI P1, “Placing Reinforcing Bars,” Concrete Reinforcing Steel Institute.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.

1. Prepare shop drawings under seal of a Professional Structural Engineer experienced in design of work of this type and licensed in Michigan.

C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

D. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

E. Welders' Certificates: Submit certifications for welders employed on the project, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.

B. Employ a quality control program to ensure that the reinforcing bars comply with the requirements of this Section.

C. Owner may engage an independent testing laboratory to perform pullout tests on dowels to verify the bond strength and proper application of the adhesive. Locations for testing will be selected by the Engineer. Provide adhesively embedded dowels for testing.

1. Prequalification testing will be performed prior to the start of work or at the time of initial dowel installation.

2. Acceptable loading of tested dowels without pullout/failure is 90 percent of their yield strength (10,800 and 16,700 pounds for No. 4 and No. 5 bars, respectively).

3. Do not proceed with dowel installation until satisfactory pullout test results have been achieved and approved by the Engineer, unless Engineer determines that testing will not be required.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver reinforcement to the project site bundled, tagged and marked. Use metal tags that indicate bar size, length, and other information corresponding to markings shown on placement diagrams.

B. At the site, store concrete reinforcement in an orderly manner on a platform or other above-ground support to facilitate inspection and to prevent damage and accumulation of dirt or excessive rust.

## PART 2 - PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 60 (420).

B. Reinforcing Steel: ASTM A 706/A 706M, deformed low-alloy steel bars.

C. Reinforcing Steel: Deformed bars, ASTM A 996/A 996M Grade 40 (280), Type A.

D. Steel Welded Wire Reinforcement: ASTM A1064

1. Flat Sheets.

2. Mesh Size and Wire Gage: As indicated on drawings.

E. Reinforcement Accessories:

1. Tie Wire.

2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

## PART 3 - EXECUTION

3.01 PREPARATION

A. Examine the conditions under which concrete reinforcement is to be placed and immediately notify the Engineer in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Engineer.

3.02 PLACEMENT

A. Comply with ACI 301/318, Chapter 5 and the Concrete Reinforcing Steel Institute's (CRSI) recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.

B. Clean existing reinforcement of loose rust and mill scale, oil, earth, ice, and other materials that reduce bond with concrete.

C. Accurately position, support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by chairs, runners, bolsters, spacers, and hangers, as required. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire tires so ends are directed into concrete, not toward exposed concrete surfaces.

D. Place supports for reinforcing bars at 4'-0" maximum spacing and a maximum of 6 inches from ends of the reinforcement.

E. Comply with ACI 318 for minimum spacing between bars, concrete cover to form surfaces, and maximum bar relocation to avoid interference with other embedments.

F. Provide standard reinforcement splices by lapping ends, placing bars in contact, and tying tightly with wire. Comply with requirements of ACI 318 for minimum lap of spliced bars and welded wire reinforcement.

3.03 FIELD QUALITY CONTROL

A. Contractor shall notify Engineer and Inspection Agency 48 hours in advance of any reinforced concrete placement. Engineer or Inspection Agency will confirm installed reinforcement for conformance to contract documents before concrete placement.

**END OF SECTION**

# SECTION 03 30 00

# CAST-IN-PLACE CONCRETE

## PART 1 – GENERAL

### 1.01 SCOPE OF WORK

A. This Section includes furnishing materials and installation of cast-in-place (CIP) concrete as indicated on the Drawings and/or specified herein. Refer to Section 32 13 13 for requirements for all other concrete shown on the plans.

B. Provide all labor, materials, tools, and equipment necessary to complete the CIP retaining wall shown on the drawings. The work shall include but not necessarily be limited to:

1. Designing and testing of concrete mixes per ACI 211.1, the standard for the design of concrete mixes.

2. Erection of formwork and placement of concrete.

3. Providing isolation, expansion, control, and construction joints.

4. Finishing, curing, and protecting all concrete work.

C. Reference Standards. Unless otherwise specified, where applicable, the latest editions of the following standards shall form a part of this specification to the extent referenced. The publications are referenced to in the text of this guide specification by the basic designation only.

### 1.02 RELATED REQUIREMENTS

A. Section 03 11 00 – Concrete Formwork

B. Section 03 15 00 – Concrete Accessories

C. Section 03 20 00 – Concrete Reinforcement

D. Section 03 35 00 – Concrete Finishing

E. Section 03 39 00 – Curing

F. Section 31 23 13 – Subgrade Preparation

G. Other sections of the specifications also apply to the extent required for proper performance of this work.

### 1.03 REFERENCES

A. American Concrete Institute (ACI)

1. ACI 117 Standard Specifications for Tolerances for Concrete Construction and Materials

2. ACI 201.2 Guide to Durable Concrete

3. ACI 211.1 Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete

4. ACI 301 Specifications for Structural Concrete

5. ACI 304R Guide for Measuring, Mixing, Transporting, and Placing Concrete

6. ACI 305R Hot Weather Concreting

7. ACI 306R Cold Weather Concreting

8. ACI 318 Building Code Requirements for Structural Concrete and Commentary

9. ACI 347 Guide to Formwork for Concrete

B. ASTM International (ASTM)

1. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

2. ASTM A706 Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement

3. ASTM A1064 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

4. ASTM C31 Standard Practice for Making and Curing Concrete Test Specimens in the Field

5. ASTM C33 Standard Specification for Concrete Aggregates

6. ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

7. ASTM C40 Standard Test Method for Organic Impurities in Fine Aggregates for Concrete

8. ASTM C70 Standard Test Method for Surface Moisture in Fine Aggregate

9. ASTM C94 Standard Specification for Ready-Mixed Concrete

10. ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

11. ASTM C143 Test Method for Slump of Hydraulic Cement Concrete

12. ASTM C150 Standard Specification for Portland Cement

13. ASTM C171 Standard Specification for Sheet Materials for Curing Concrete

14. ASTM C172 Standard Practice for Sampling Freshly Mixed Concrete

15. ASTM C173 Test Method for Air Content of Freshly Mixed Concrete by Volumetric Method

16. ASTM C231 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

17. ASTM C260 Standard Specification for Air-Entraining Admixtures for Concrete

18. ASTM C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

19. ASTM C494 Standard Specification for Chemical Admixtures for Concrete

20. ASTM C1064 Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete

21. ASTM C1602 Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete

C. AMERICAN WELDING SOCIETY (AWS)

1. AWS D 1.1 Structural Welding Code – Steel

2. AWS D 1.4 Structural Welding Code – Reinforcing Steel

1.04 CONCRETE MIX DESIGNS

A. Establish concrete mix design proportions based on previous field experience or trial mixtures in accordance with ACI 301 and ACI 318.

B. Concrete mix designs are to be submitted by the Contractor and approved by the Engineer.

C. Concrete Proportions: Selection of proportions for concrete shall be based on the methodology presented in ACI 211.1 for normal weight concrete. The concrete proportions shall be developed using the same type and brand of cement, the same type and gradation of aggregates, and the same type and brand of other supplementary cementitious materials and admixtures that will be used upon request, the concrete producer shall submit a mix design for each strength, and type of concrete that will be used. Submitted mix designs shall include the quantity, type,

brand, and applicable data sheets for all mix design constituents as well as documentation indicating conformance with applicable reference specifications.

D. Air Content: Concrete shall have between six and seven percent air, by volume and conform to ACI 201.2.

E. A minimum of 564 lbs. of cement shall be used for mix per cubic yard and the water/cement ratio shall not exceed 0.40 for concrete mixes. The maximum percentage of pozzolans, including fly ash and silica fume, and slag cement shall be in accordance with Article 26.4.2.2(b) of ACI 318-14.

F. Slump: The slump of normal concrete shall not exceed 3 inches.

G. Compressive Strength:

1. Thrust Blocks: Concrete shall have a minimum 28-day laboratory compressive strength of 4000 psi.

1.05 SUBMITTALS

A. See Section 01 30 00 for submittal procedures.

B. Submit copies of the concrete mix designs with supporting data confirming compliance with the requirements of this specification.

C. Product Data: Submit printed manufacturers' literature for each manufactured item specified under Part 2, Products, along with test data as required.

D. Submit names of Manufacturers/Suppliers for acceptance by the Engineer for the following items:

1. Aggregates.

2. Ready-mixed Concrete.

3. Cement.

4. Admixtures.

5. Joint filler.

6. Reinforcing Steel

7. Membrane curing, sealing, hardening, and dust proofing compounds.

E. Certification for Admixtures: Submit certificate of compatibility of each admixture with all other concrete ingredients and with each applicable concrete surface treatment.

F. Certification for Curing Compounds, Sealers, Hardeners, Dust proofing, etc.: Submit a certificate of compatibility with concrete and with materials to be applied to concrete surface.

1.06 QUALITY CONTROL

A. Prior to starting concrete operations, the Contractor shall name his source of supply for concrete materials and shall submit representative samples and reports of quality tests for approval.

B. The Owner will engage and pay for the services of an independent Quality Control (QC) Consultant who will perform all necessary quality control checks and tests.

C. The QC Consultant will review the mix designs submitted and will determine whether the mix designs meet the requirements of this specification.

D. Contractor shall notify QC Consultant no less than 48 hours prior to placing concrete. Omitted and misplaced reinforcement and embedded items and work not complying with codes or as specified herein or indicated by the plans are the Contractor's responsibility. The Contractor is not relieved of responsibility by the QC Consultant's observation.

E. The QC Consultant will test and check materials, procedures and conditions as the work progresses. Failure to detect defective work shall not prevent rejection when defect is discovered, nor shall it obligate the Owner for final acceptance. The following tests will be performed at the designated frequency:

1. Secure composite samples in accordance with "Standard Method of Sampling Freshly Mixed Concrete," ASTM C172 latest version.

2. Mold and cure a set of six 4 x 8-inch, cylinder specimens for each test required in accordance with "Standard Practice for Making and Curing Concrete Test Specimens in the Field," ASTM C31 latest version. Additional field-cured cylinders shall be molded and cured as required.

3. All materials shall be sampled, tested in accordance with appropriate ASTM Standards, and approved before inclusion in any work on this project.

4. Test the specimens in the laboratory in accordance with "Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens," ASTM C39-20. Three specimens shall be tested at 28 days for acceptance, one shall be tested at 7 days for information and two shall be kept as spare specimens. Field-cured cylinders shall be tested as required.

5. Make one strength test for each 50 cubic yards or fraction thereof for each mix placed in any one day.

6. Samples for testing shall be furnished by the Contractor.

7. Determine slump of normal-weight concrete for each strength test in accordance with “Standard Test Method for Slump of Portland Cement Concrete,” ASTM C143.

8. Determine total air content of normal-weight concrete for each strength test in accordance with “Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method,” ASTM C231 latest version or “Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method,” ASTM C173 latest version.

9. Determine temperature, unit weight, and yield of concrete for each strength test in accordance with ASTM C1064.

10. Determine air temperature during each strength test.

F. The Contractor shall provide and maintain for the use of the QC Consultant adequate facilities for proper curing of concrete test specimens on the project site in accordance with “Standard Practice for Making and Curing Concrete Test Specimens in the Field,” ASTM C31.

## PART 2 – PRODUCTS

### 2.01 CONCRETE MATERIALS

A. All materials shall be subject to approval. Any change of materials specified shall be submitted for approval and such change, if acceptable, shall be used only when specifically authorized in writing by the Engineer. Materials shall conform to the following specifications:

1. Portland Cement: Type I conforming to ASTM C150 “Standard Specification for Portland Cement.”

2. Aggregates:

(a) Fine aggregate: clean, sharp, natural sand, free from loam, clay lumps, and deleterious substances, within allowable standards.

(b) Coarse aggregate: clean, uncoated, graded aggregate containing no clay, mud, loam, or foreign matter.

(c) Both fine and coarse aggregates should confirm ASTM C136 for sieve analysis. Lightweight aggregates for concrete shall conform to ASTM C330. Fine and coarse aggregates, other than lightweight aggregate shall confirm to ASTM C33, maximum size 3/4 inch with maximum percent loss when tested in accordance with ASTM C88. Aggregates shall not contain any substance which may be deleteriously reactive with the alkalis in the cement. Upon request, the concrete producer shall provide documentation indicating the

aggregates are not susceptible to alkali-aggregate reaction. Fine aggregates shall confirm ASTM C40 and ASTM C70.

3. Water: Shall be clean, potable, and free from deleterious materials and shall conform to ASTM C1602.

4. Air-entraining Admixture: Provide admixture meeting the requirements of ASTM C260.

5. All concrete shall be normal weight unless specifically noted otherwise.

6. Water-reducing Admixtures: Provide admixtures meeting the requirements of ASTM C494-20.

7. Do not use admixtures containing chlorides in any form.

2.02 REINFORCING STEEL

A. Applicable ASTM International and/or ACI 318 standards for placement and splicing cages of reinforcement shall be fabricated either by tying the bars, wires, or welded wire reinforcement into rigid assemblies or by welding, where permissible, in accordance with AWS D1.4. Reinforcing shall be positioned as specified by the design and so that the concrete cover conforms to requirements.

B. Embedded Items: Embedded items shall be positioned at locations specified in the design documents. Items to be embedded in concrete shall be held rigidly in place so that they do not move significantly during casting operations.

C. Reinforcing bars: Provide reinforcement of the grade and type as indicated on the Plans or Shop Drawing.

1. Deformed and Plain Billet Steel Bars: ASTM A615.

2. Low Alloy Steel Deformed Bars: ASTM A706.

D. Welded wire fabric shall confirm to ASTM A1064.

E. Do not use wood blocks, stones, brick chips, etc. to support reinforcement.

2.03 CONCRETE FORMWORK

A. Design the formwork for the loads, lateral pressure, and allowable stresses outlined in ACI 347 “Guide to Formwork for Concrete” and for design considerations, wind loads, allowable stresses, and other applicable requirements of the local building code.

B. Provide formwork that is true in every respect to produce hardened concrete to the required shape, size, grade, and alignment as indicated on the Contract Drawings, and of sufficient strength, bracing, and rigidity to maintain their position and shape under the loads and operations incidental to placing and curing the concrete, as well as all other forces resulting from the movement of the forms. The forms must be mortar-

tight at the time concrete is placed in them and must be so constructed that the surfaces of the finished concrete will be reasonably free from ridges, fins, offsets, or similar defects. Provide adequate and suitable means for removing the forms without injury to the surfaces or edges of the finished concrete.

2.04 PREPARATIONS

A. Concrete placing shall not be started until all necessary preparations have been completed and approval has been given. Preparations shall consist of completing all form work involved; placing all reinforcing steel, pipes, conduits, sleeves, hangers, anchors, fastening devices, waterproofing, and such other work to be built into the concrete in the section to be poured; and any other preparations herein required for the concreting operations.

B. Free water and any mud or debris shall be removed from forms and excavations to be occupied by concrete. Approved equipment shall be available on the job site for heating and/or protecting the concrete whenever freezing temperatures are likely to occur within the curing period. Ice or chilled water may be required to control concrete temperature in hot weather to below 90 degrees F.

C. Concrete Mixing: Concrete mixing, transporting, and placing shall be performed in accordance with ACI 304R. Mixing operations shall produce batch-to-batch uniformity of strength, consistency, and appearance.

## PART 3 – EXECUTION

3.01 EXAMINATION OF FIELD CONDITIONS

A. Examine all conditions and facilities prior to starting concrete construction. Notify the Engineer in writing of all unsatisfactory conditions that may affect the erection or support of form work. Contractor’s commencement of work will constitute acceptance of conditions.

B. Make necessary field measurements to verify all dimensions affecting the work.

C. Alignment: Members shall be properly aligned and leveled as required by Shop drawings.

3.02 SUBGRADE PREPARATION FOR CONCRETE CONSTRUCTION

A. Comply with the requirements of Section 31 23 13 Subgrade Preparation.

B. Smooth, trim, and compact the subgrade to the required line, grade and cross-section. Thoroughly compact the subgrade, between lines at least 12 inches outside the limits of concrete to be supported by the subgrade, by rolling with a roller of an approved type weighing not less than 5 tons.

C. Make sure that the subgrade is moist at the time of placing concrete. If the subgrade becomes dry before the concrete is placed, sprinkle the subgrade with water using a

method of sprinkling that does not permit pools of water to form on the subgrade. Do not place the concrete on muddy, soft, or frozen subgrade.

D. After the subgrade is properly prepared, do not allow equipment to cross the subgrade and do not allow workers on the subgrade more than necessary for subsequent construction activities, such as form installation or reinforcement placement. Avoid disturbing the subgrade. If disturbance occurs, perform repairs as directed and to the satisfaction of the Owner's Representative.

3.03 JOINTS

A. Expansion Joints: Provide expansion joints as indicated and seal/waterproof in accordance with the plans.

B. Contraction (control) Joints: Construct contraction joints as indicated on the plans.

3.04 PRODUCTION OF CONCRETE

A. Concrete shall be ready-mixed, batched, and transported in accordance with ASTM C94 "Specification for Ready-Mixed Concrete."

1. Plant equipment and facilities shall conform to the "Checklist for Certification of Ready-Mixed Concrete Production Facilities" of the National Ready-Mixed Concrete Association.

2. Maintain concrete slump within the specified ranges. Do not add water on site.

3.05 CONCRETE PLACEMENT

A. Do not proceed with concrete placement until the conditions of the subgrade are approved by the Owner's Representative.

B. Pre-placement Inspection: Before placing concrete, inspect and complete form work installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work; cooperate with other trades in setting such work.

C. Preparation: Provide access for delivery; provide sufficient equipment and manpower to rapidly place all concrete.

D. Place concrete within 90 minutes following initial batching. Any concrete that exceeds the 90-minute limit will be rejected and must be removed from the site.

E. Conveying: Concrete shall be placed rapidly by methods which prevent segregation or loss of quality.

1. Move fresh concrete from the point of receipt to the location of final deposit by chutes, concrete bucket, pneumatic-tired buggies, or pumps. Canvas or rubber "elephant trunks" of appropriate lengths shall be used to limit free fall of concrete.

2. Deposit concrete as near as practical to final position. Maximum free fall shall be three feet.

3. Do not use vibrators to move concrete.

F. Deposit concrete continuously so that no concrete will be placed against concrete which has hardened sufficiently to cause the formation of seams or planes of weakness or cold joints. If a section cannot be placed continuously, provide construction joints.

G. Consolidation: Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use of vibrators to transport concrete is not allowed.

1. Vibrators shall have a minimum frequency of 8,000 cycles/min.

2. Vibrators shall be operated by competent workers.

3. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least six inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

## 3.06 WEATHER CONDITIONS

A. Cold Weather Placing: Protect concrete work from physical damage or strength reduction which could be caused by frost, freezing actions, or low temperatures, in accordance with ACI 306R as herein specified.

1. When air temperature has fallen to or is expected to fall below 40°F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F, and not more than 80°F at point of placement.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators.

4. Protect concrete with insulated blankets or use temporary heaters to maintain the internal temperature of the concrete at 50°F or above (but not to exceed 90°F) throughout the curing process. Temporary heaters shall be vented to outside of the protection envelope.

B. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305.1 and as herein specified.

1. Hot weather is defined as air temperatures which exceed 90°F or any combination of high temperature, low humidity, and/or high wind velocity which causes a rate of evaporation in excess of 0.2 pounds per square foot per hour as determined by ACI 305.

2. Concrete ingredients shall be cooled before mixing to prevent concrete placement temperatures from exceeding 90°F.

3. Provisions shall be made for ice, windbreaks, shading, fog spraying, sprinkling, or wet cover when necessary.

4. Cure placed concrete with wet burlap. Keep burlap constantly wet for 7 days minimum.

## 3.07 CONCRETE FINISHING

A. Provide broom surface finish, unless noted otherwise in the Contract Documents.

## 3.08 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying, excessive cold, or hot temperatures and mechanical injury.

1. Protect concrete slabs and foundations supported on soil from frost action and danger from heaving by insulating the slab with temporary insulation material thick enough to prevent frost penetration into the subgrade.

B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing.

C. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least seven days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

D. Curing Methods: Perform curing of concrete by applying a membrane-forming curing compound in accordance with the manufacturer's instructions.

1. Apply specified curing compound as soon as final finishing operations are complete (within two hours).

2. Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer’s directions.

3. Re-coat areas subjected to heavy rainfall within three hours after initial applications.

4. Maintain continuity of coating and repair damage during curing period.

## 3.09 PATCHWORK AND REPAIRS

A. Notify Engineer of any defective areas in concrete to be patched or repaired.

B. Cut out and remove honeycombs, rock pockets, and/or voids over 1/4 inch in any dimension, down to sound concrete but in no case to a depth of less than one inch. Make perimeter edges or cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

C. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects include crazing, cracks in excess of 0.01-inch-wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.

D. Repair methods not specified above may be used, subject to acceptance of the Engineer.

**END OF SECTION**

**SECTION 03 31 30**

**CONCRETE RESTORATION/REPAIR**

## PART 1 - GENERAL

1.01 SUMMARY

A. Section includes spot repair of localized damaged and deteriorated concrete.

1.02 RELATED REQUIREMENTS

A. Section 03 1100: Concrete Formwork

B. Section 03 1500: Concrete Accessories

C. Section 03 2000: Concrete Reinforcement

D. Section 03 3000: Cast-in-place Concrete

E. Section 03 37 13: Shotcrete

F. Other sections of the specifications also apply to the extent required for proper performance of this work.

1.03 REFERENCE STANDARDS

A. ACI (American Concrete Institute)

1. ACI 506R Guide to Shotcrete

2. ACI 506.2 Specification for Shotcrete

B. ASTM (ASTM International)

1. ASTM C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

C. ICRI (International Concrete Repair Institute)

1.04 PREQUALIFICATION TESTING FOR SHOTCRETE METHOD

A. Comply with the requirements of Section 03 37 13 –Shotcrete.

1.05 SUBMITTALS

A. Product data and installation procedures for packaged patching material.

B. Product data and installation procedures for bonding agent/slurry for use in conjunction with packaged patching material, including letter from manufacturer of packaged patching material indicating compatibility.

C. Submit proposed mix proportions and manufacturer's written approval for extension of prepackaged repair materials by the addition of aggregates.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Materials used must comply with NSF 61 guidelines for use with potable water.

B. In localized repair areas, and only as approved by the Engineer, provide trowel-applied mortar or shotcrete (wet or dry-mix process) as patching material. Provide minimum 28-day compressive strength of 5000-psi.

1. Approved packaged trowel-applied mortars are:

a. SikaTop 123 Plus, by Sika Corporation, Lyndhurst, NJ;

b. MasterEmaco S 488CI, by Master Builder Solutions by BASF, Shakopee, MN

c. Engineer-approved equivalent.

d. Where approved by the Engineer, packaged materials may be extended with the addition of aggregates.

2. Approved packaged shotcrete materials: Comply with the requirements of Section 03 37 13, Item 2.01.

C. In large areas, and only as approved by the Engineer, provide packaged mortar (form-and-pour method or form-and-pump method) or shotcrete (dry-mix process) as patching material. Provide minimum 28-day compressive strength of 5000-psi.

1. Approved packaged mortars for form-and-pour method include:

a. SikaTop 111 Plus by Sika Corporation, Lyndhurst, NJ;

b. MasterEmaco S 488CI, by Master Builder Solutions by BASF, Shakopee, MN

c. Engineer-approved equivalent.

d. Where approved by the Engineer, packaged materials may be extended with the addition of aggregates.

2. Approved packaged mortars for form-and-pump method include Sika MonoTop 611 by Sika Corporation, Lyndhurst, NJ or Engineer-approved equal. Where approved by the Engineer, packaged materials may be extended with the addition of aggregates.

D. Bonding Agent/Slurry

1. Use product that is recommended by the manufacturer of the pre-packaged mix. Perform surface preparation and priming in accordance with the written instructions of the product manufacturer.

2. Bonding agent/slurry is not required where repairs by the shotcrete method will be performed.

## PART 3 - EXECUTION

3.01 PREPARATION

A. Protect the structure from repair operations. Provide protection for items such as exposed lighting and signage, as appropriate.

B. Remove concrete to the depths shown or required. Prepare the edges of the patches so there are no re-entrant corners. Provide straight or dovetailed edges; do not feather edges. Provide minimum depth at edges in accordance with the requirements of the repair material manufacturer. Roughen contact surfaces by chipping, water blasting, sandblasting, scarifying, or other approved methods. Surface of chipped concrete shall be blast cleaned to remove unsound concrete. Thoroughly clean the surface, removing loose particles and dust. Mechanical preparation may be used only with permission of the Engineer. Provide a minimum ICRI Concrete Surface Profile (CSP) of 3 to 8.

C. Do not cut into or through steel reinforcement.

D. Thoroughly wash the roughened concrete surface.

E. Form repair areas in accordance with Section 03 11 00, if required for size of patch.

3.02 PLACEMENT OF REPAIR MORTAR

A. Dampen the prepared surface with clean water prior to application of patch material.

B. Apply bonding agent/slurry in accordance with the recommendations of the material manufacturer.

C. Mix the repair mortar and apply in strict accordance with the manufacturer's recommendations. Implement manufacturer's recommended substrate and ambient temperature requirements during repairs.

D. Place the repair material to force the material against the edge of the repair and then work progressively toward the center.

E. Provide minimum cover of ¾-inch over and around exposed reinforcing steel.

F. Do not permit one single placement to exceed a depth of 1-1/2 inches for overhead patches unless patching is performed using the form-and-pump method and material.

G. When multiple lifts of material are used to achieve desired thickness, scratch each lift and prime with bonding agent/slurry prior to application of subsequent lift. Achieve initial cure before the application of the next lift.

H. Finished surface to match the existing contour of the concrete member to the satisfaction of the Engineer.

I. Protect repair mortar from freezing, premature drying, flowing water, mechanical injury and other areas under repair.

J. If bonding agent is not covered remove bonding agent by power washing and place new bonding agent.

K. When patches are located below the normal flow line of the sewer, accelerate the strength gains of the repair mortar to achieve a minimum compression strength of 2,000 psi prior to the application of flow.

## 3.03 PLACEMENT OF SHOTCRETE

A. Perform shotcrete work in accordance with manufacturer recommendations, ACI 506R and Specification Section 03 37 13 – Shotcrete.

## 3.04 CURING, TESTING, FINISHING AND REPAIRING REPAIR MORTAR

A. After placement, cure mortar in strict accordance with manufacturer's recommendations. When ambient conditions may cause premature surface drying, provide continuous moist cure by misting, sprinkling, or use of absorptive mat or fabric covering kept continuously moist as required by manufacturer.

B. Following the curing period, grind away roughness or deformations in the repair mortar surface to match the existing contour of the concrete member.

C. After curing for 7 days, sound the patched areas with a small brick hammer or rod in the presence of the Engineer. Repair patches that indicate hollowness by removing and replacing patched area at no extra cost to Owner.

D. Repair patched areas that exhibit shrinkage cracks after the initial curing period is completed by removing and replacing patching material at no extra cost to the Owner.

E. Do not allow external loading on repaired areas until the patch material has achieved minimum 75 percent of its required 28-day compressive strength, or for a minimum of 72 hours.

F. Remove debris from repair areas and clean items such as exposed lighting and signage, as appropriate.

**END OF SECTION**

# SECTION 03 35 00

# CONCRETE FINISHING

## PART 1 – GENERAL

1.01 SCOPE OF WORK

A. Section includes finishing of cast-in-place concrete specified in Section 03 30 00.

1.02 RELATED REQUIREMENTS

A. Section 03 11 00 – Concrete Formwork

B. Section 03 30 00 – Cast-in-Place Concrete

C. Other sections of the specifications also apply to the extent required for proper performance of this work.

1.03 REFERENCES

A. American Concrete Institute (ACI)

1. ACI 301 Specifications for Structural Concrete

1.04 QUALITY ASSURANCE

A. General: Do not dust with dry cement or other mixtures. Do not add water during finishing. Conform to the applicable requirements of ACI 301 for finishing.

B. Locations:

1. Steel-trowel finish all top, horizontal, and inclined surfaces not otherwise specified or indicated. This includes concrete fills and toppings, top of walls, floors, and cover surfaces to which waterproofing is to be applied.

2. Hand steel-trowel finish all surfaces shaped with or without forms and over which liquids will flow.

3. Float finish floors scheduled to receive concrete fills and toppings.

4. Broom-finish exterior walkways, exterior stairs, entrance platforms and loading docks.

5. Use smooth forms for all structures in conformance with Section 03 11 00, except where indicated otherwise on the Contract Drawings.

## PART 2 – PRODUCTS

2.01 TOOLS AND EQUIPMENT

A. Furnish all materials, tools, equipment, facilities, and services as required for performing the required concrete finishing work.

## PART 3 – EXECUTION

3.01 FINISHES

A. Steel-Trowel Finish: Remove excess laitance from surfaces by tamping, screeding, and magnesium or bull floating. Compact the surface with floats when slab has hardened so that water and fine material will not work to top. Trowel smooth free of blemishes. Do not start troweling until all water has disappeared from the surface. Avoid over-troweling.

B. Float Finish: Prepare surfaces by tamping with special tools to force coarse aggregate away from surface, screeding with straight edges to bring surfaces to required line and then magnesium or bull-float.

C. Broom Finish: Steel-trowel surface then broom normal to direction of travel with fine hair stable broom to produce non-slip surface of uniform appearance.

D. Smooth Form Finish: Remove fins, finish flush with parent concrete, and make necessary repairs. Wet and rub finned and repaired areas with carborundum stone or other abrasive until uniform color and texture are produced. Complete rubbing not later than 24 hours after the curing period.

**END OF SECTION**

# SECTION 03 39 00

# CURING

## PART 1 – GENERAL

1.01 SCOPE OF WORK

A. Section includes concrete curing and applies to cast-in-place concrete specified in Section 03 30 00.

1.02 RELATED REQUIREMENTS

A. Section 03 11 00 – Concrete Formwork

B. Section 03 30 00 – Concrete Finishing

C. Other sections of the specifications also apply to the extent required for proper performance of this work.

1.03 REFERENCES

A. American Concrete Institute (ACI)

1. ACI 207.1R Guide to Mass Concrete

2. ACI 301 Specifications for Structural Concrete

3. ACI 305 Recommended Practice for Hot Weather Concreting

4. ACI 306 Recommended Practice for Cold Weather Concreting

5. ACI 308 Standard Practice for Curing Concrete

B. American National Standards Institute / NSF International (ANSI/NSF)

1. Standard 61

C. ASTM International (ASTM)

1. ASTM C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

1.04 QUALITY ASSURANCE

A. Protect concrete from premature drying, hot or cold temperatures, and mechanical injury beginning immediately after placement, and maintain concrete with minimal moisture loss at relatively constant temperature.

B. Cure concrete using water.

C. Comply with curing procedures set forth in ACI 301, applicable portions of ACI 308, and as specified herein.

D. Perform hot weather concreting in conformance with ACI 305.1 and as specified herein when the ambient atmospheric temperature is 80° F [25° C] or above.

E. Perform cold weather concreting in conformance with ACI 306.1 and as specified herein when the ambient atmospheric temperature is 40° F [5° C] or below.

## PART 2 – PRODUCTS

2.01 CURING COMPOUND

A. Liquid form, which will form impervious membrane over exposed surface of concrete when applied to fresh concrete by means of spray gun.

B. Compound not to prevent future bond of floor covering or concrete floor treatment.

C. Use Type I-D compound with red fugitive dye, Class B, having 18 percent minimum solids conforming to ASTM C309.

## PART 3 – EXECUTION

3.01 DURATION

A. Start initial curing after placing and finishing concrete as soon as free moisture has disappeared from unformed concrete surfaces. Initial curing starts as soon as formed concrete achieves final set. Forms left tightly in place are considered as part of the curing system, provided that wooden forms are kept continuously moist. Keep continuously moist for not less than 72 hours.

B. Begin final curing procedures immediately following initial curing and before the concrete has dried. Continue final curing for at least 7 days and in accordance with ACI 301 procedures for a total curing period, initial plus final, of at least 10 days.

C. For concrete sections over 30 inches thick, continue final curing for an additional 7 days, minimum.

D. Avoid rapid drying at the end of the final curing period.

E. Refer to ACI 207.1R and ACI 318 for curing requirements for Mass Concrete.

3.02 CURING REQUIREMENTS

A. Unformed Surfaces: Cover and cure entire surface of newly placed concrete immediately after completing finishing operations and water film has evaporated

from surface or as soon as marring of concrete will not occur. Protect finished slabs from direct rays of the sun to prevent checking, crazing and plastic shrinkage.

B. Formed Surfaces: Minimize moisture loss for formed surfaces exposed to heating by the sun by keeping forms wet until safely removed. Keep surface continuously wet by warm water spray or warm water saturated fabric immediately following form removal.

C. Water-Retaining and Below-Grade Structures: Moist cure by the addition of water to maintain the surface in a continually wet condition. Use water that is free of impurities that could etch or discolor exposed concrete surfaces. Cure other concrete by moist curing, by moisture-retaining cover curing, or by the use of curing compound. Use curing compound at water-retaining and below-grade structures only in cold weather after the initial curing period and only when approved by the Engineer, in writing.

## 3.03 CURING METHODS

A. Water Curing: Use warm water curing for unformed surfaces. Continuously water cure all exposed concrete for the entire curing period. Provide moisture curing by any of the following methods:

1. Keeping the surface of the concrete continuously wet by ponding or immersion.

2. Continuous water-fog spray or sprinkling.

3. Covering the concrete surface with curing mats, thoroughly saturating the mats with water, and keeping the mats continuously wet with sprinklers or porous hoses. Place curing mats so as to provide coverage of the concrete surfaces and edges, with a 4-inch lap over adjacent mats. Weight down the curing cover to maintain contact with the concrete surface, as necessary.

B. Sealing Materials:

1. Use common sealing materials such as plastic film or waterproofing (Kraft) paper when approved by the Engineer.

2. Lap adjacent sheets a minimum of 12 inches [300 mm]. Seal edges with waterproof tape or adhesive. Use sheets of sufficient length to cover sides of concrete member.

3. Place sheet materials only on moist concrete surfaces. If the surface appears dry, wet concrete surface with fine warm water spray.

4. The presence of moisture on concrete surfaces at all times during prescribed curing period is proof of acceptable curing using sheet material.

C. Membrane Curing Compound:

1. Apply membrane-curing compound uniformly over concrete surface by means of roller or mechanical spray machine at a rate recommended by the curing compound manufacturer, but not less than 1 gallon per 150 sq. ft. [1 liter per 4 sq. meters] of surface area. Agitate curing material in supply container immediately before transfer to distributor and thoroughly agitate it during application for uniform consistency and dispersion of pigment.

2. Do not use curing compounds on construction and expansion joints or on surfaces to receive liquid hardener, dustproofer/sealer, concrete paint, tile, concrete fills and toppings, or other applications requiring positive bond.

3. Reapply membrane-curing compound to concrete surfaces that have been subjected to rainfall within three hours after curing compound has been applied by method for initial application.

4. Maintain the continuity of the coating and repair damage to the coating during the entire curing period.

5. Provide a copy of manufacturer's certification that the curing compound meets the requirements of ANSI/NSF 61 for concrete surfaces that will be in contact with potable water.

6. When curing compound is authorized for application to water retaining or below grade members, apply at the manufacturer's recommended coverage rate and then apply again at the same rate to provide twice the recommended coverage.

## 3.04 PROTECTION FROM ENVIRONMENTAL CONDITIONS

A. Maintain the concrete temperature between 50 degrees F and 70 degrees F continuously throughout the curing period. Make arrangements before concrete placing for heating, covering, insulation, or housing as required to maintain the specified temperature and moisture conditions continuously for the curing period. Provide and obtain the approval of the Engineer arrangements 24 hours prior to the concrete placement.

B. When the atmospheric temperature is 80 degrees F and above, or during other climatic conditions which will cause too rapid drying of the concrete, make arrangements before the start of concrete placing for the installation of wind breaks or shading, and for fog spraying, wet sprinkling, or moisture-retaining covering.

C. Protect the concrete continuously for the concrete curing period.

D. Maintain concrete temperature as uniformly as possible and protect from rapid atmospheric temperature changes.

E. Avoid temperature changes in concrete that exceed 5 degrees F [3 degrees C] in any one hour and 50 degrees F [10 degrees C] in any 24-hour period.

3.05 PROTECTION FROM PHYSICAL INJURY

A. Protect concrete from physical disturbances such as shock and vibration during curing period. Protect finished concrete surfaces from damage by construction equipment, materials, application of curing procedures and rain or running water. Do not load concrete in such a manner as to overstress concrete.

3.06 PROTECTION FROM DEICING AGENTS

A. Do not apply deicing chemicals and salt to concrete.

**END OF SECTION**

# SECTION 04 01 20.91

# CONCRETE MASONRY UNIT RESTORATION

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes

1. Repoint concrete masonry unit (CMU) mortar joints, where indicated on Drawings.

2. Provide new CMU expansion joints as shown on the plans.

3. Provide new CMU to replace cracked and spalled units.

B. Related Sections

1. Section 05 0110 – Maintenance of Structural Metal Framing

2. Section 07 9213 – Elastomeric Joint Sealants

C. Measurement and Payment Procedures

1. Where plans indicate an estimated quantity for a particular work item, payment will be based upon actual quantity of work completed and agreed to by Contractor, Engineer, and Company.

2. Contractor shall maintain records of work quantities for review and approval of Engineer.

### 1.02 REFERENCES

A. ASTM C90 “Standard Specification for Loadbearing Concrete Masonry Units”

B. ASTM C1634 “Standard Specification for Concrete Facing Brick and Other Concrete Masonry Facing Units”

C. ASTM C744, “Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units”

D. ASTM A167 “Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip”

E. Masonry Standards Joint Committee (MSJC) TMS 602-11/ACI 530.1-11/ASCE 6-11 “Specification for Masonry Structures”

F. ASTM C1877, “Standard Specification for adhered Concrete Masonry Units”

1.03 SUBMITTALS

A. Product data for each proprietary material used including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements of these Specifications.

B. Material certificates for each of the following, signed by manufacturer and Contractor certifying that each material is in compliance:

1. Each different cement product required, including name of manufacturer, brand, and type.

C. Proposed mortar mix design.

D. CMU Test Reports

1. For each type of existing CMU, remove five whole brick units and submit to Engineer for compressive strength testing.

2. For each type of replacement CMU, submit test report that is not more than 18 months old. Include test results for efflorescence.

1.04 QUALITY ASSURANCE

A. Restoration Specialist: Engage an experienced masonry restoration firm that specializes in the types of work required for this Project.

B. Comply with MSJC, except as modified herein.

C. Use adequate numbers of skilled workers who are thoroughly trained and experienced in necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of Work of this Section.

D. Source of Materials: Obtain materials from a single source for each type of material required.

E. Install proprietary products in conformance with manufacturer’s recommendations.

F. Attend meeting with Engineer, prior to start of repointing Work, to review repointing procedures.

G. Engineer will review repair Work in progress. The following items shall not be covered until the Engineer and Company have reviewed them:

1. Installation of through-wall flashing.

H. Field Constructed Mock-ups: Prepare mock-ups using same materials and methods proposed for the Work, and under same weather conditions to be expected during the Work. Obtain Engineer's acceptance before proceeding with the Work. Retain acceptable panels in an undisturbed condition and suitably marked during construction as a standard for judging completed Work.

1. Locate mock-ups on the building in a location agreed to by Engineer and Company's Project Representative.

2. Notify Engineer one week in advance of date when mock-ups will be erected.

3. Mock-ups will be judged for aesthetic effects, quality of workmanship, and conformance of materials and construction to Contract Document requirements.

4. Acceptance of mock-ups does not constitute approval of Contract Document deviations contained in mock-ups, unless such deviations are specifically approved by Company in writing.

5. Prior to repointing work, demonstrate materials and methods to be used by providing mock-ups for review by Engineer and Company.

a. Provide one mock-up to demonstrate mortar joint preparation.

b. Provide one mock-up to demonstrate mortar joint filling and tooling.

c. Provide mock-up to demonstrate effectiveness of cleaning solution. Permit Engineer and Company to review after seven days.

## 1.05 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units and cementitious materials above ground on wood pallets or blocking, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes.

B. Store aggregates where gradation and other required characteristics can be maintained, and contamination avoided.

C. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

D. Promptly remove damaged or otherwise unsuitable material from site.

1.06 PROJECT CONDITIONS

A. Coordinate and schedule with Company prior to performing grinding or other dust-producing operations. Cover penetrations in building envelope to prevent dust entry during Work.

B. Cold Weather Construction: Comply with MSJC for requirements during preparation, during construction, and for protection.

C. Hot Weather Construction: Comply with MSJC for requirements during preparation, during construction, and for protection.

D. Weather During Application of Water Repellent

1. Surface and air temperatures must be at least 40 degrees F during application and for eight hours following application.

2. If freezing conditions exist before application, allow masonry to thaw.

3. Surface and air temperatures must not exceed 90 degrees F.

E. Stain Prevention

1. Prevent mortar from staining face of masonry.

2. Protect sills, ledges, and projections from mortar droppings.

3. Protect surfaces of window and door frames, as well as similar building elements with painted and integral finishes from mortar droppings.

1.07 WARRANTY

A. Provide 2-year written warranty signed by Contractor agreeing to repair or replace masonry repairs that show evidence of cracking, delamination, spalling or corrosion.

B. Upon notification of such defects, make necessary repairs or replacement at no cost to Company and for the convenience of the Company. Repair work shall be in accordance with requirements of these Contract Documents.

## PART 2 - PRODUCTS

2.01 MASONRY UNIT MATERIALS

A. Concrete Masonry Unit:

1. ASTM C1634

2. Match existing in color, size, texture, and physical properties. Provide units with compressive strength that is not more than 115% nor less than 85% of the existing unit compressive strength, as determined by testing required in Article 1.03D.

## 2.02 MASONRY MORTAR MATERIALS

A. Portland Cement: ASTM C150, Type I or II. Provide natural color or white cement as required to produce mortar color to match adjacent existing mortar.

B. Hydrated Lime: ASTM C207, non-air-entrained, Type S.

C. Sand: Similar in size and gradation to existing mortar sand; ASTM C144 otherwise.

D. Chemical Additives: None permitted without the express written permission of the Engineer.

E. Water: Clean, clear and suitable for drinking, free of chemicals that may be deleterious to masonry and mortar.

## 2.03 MISCELLANEOUS MATERIALS

A. Sealant, Bond Breakers, and Backer Rods: Comply with Section 07 9213.

B. Wall Siding Accessories

1. Metal drip edge at parapet coping: Continuous Kynar 500 coated steel siding or approved equal.

2. Butyl Sealant in laps of sheet metal drip edge: Section 07 9213.

C. Weeps: Vinyl weep hole/vent: one-piece L-shaped unit made to fit in a vertical mortar joint; fabricated from PVC and consisting of a vertical channel with louvers and a flat horizontal. Williams-Goodco Brick Vent by Williams Products, Inc., or SS Weep Vents by York Flashings, Sanford, ME or approved equal. Color to be selected by Company.

D. Remediation Anchors: Stainless steel Grade 304, helical anchor, 8 mm in diameter by 270 mm long. Acceptable product: Helifix by Halfen USA Inc., inquire@helifix.com, 888-992-9989, or Engineer-approved equal.

E. Wire Column Tie: 351- Wire Column Tie, Stainless steel 316 by Hohmann & Barnard, Hauppage, NY or 2600 Column Flange Tie, Stainless steel by Wire-Bond, Charlotte, NC or approved equal.

2.05 MORTAR MIXES

A. General: Do not add admixtures including coloring pigments, air-entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or other admixtures, unless specifically approved in writing by Engineer.

B. Repointing Mortar and Mortar for Laying New Units: Type N Mortar per ASTM C270, proportion specification. Limit cementitious materials to portland cement and lime. **Air entrainment is not permitted**.

## PART 3 - EXECUTION

3.01 PREPARATION FOR REPOINTING

A. Joint Preparation

1. Cut out mortar joints designated for repointing, removing unsound mortar until only sound material remains; minimum depth 3/4" inch and maximum depth 1-3/4 inches from the brick outside surface. Cut out joints to a square profile and uniform depth; furrow-shaped joints are not acceptable.

2. Employ mortar removal methods that do not damage masonry units.

3. Remove loose particles, dust and debris from joints, using an oil-free air jet or a water stream.

B. Batching Repointing Mortar

1. Dry mix sand and cementitious materials. Accurately proportion mix materials by volume. Provide calibrated containers and scales at site for proper proportioning.

2. Add only enough water to produce a damp mix that will retain its shape when pressed into a ball by hand.

3. Mix for at least three (3) and not more than seven (7) minutes in a mechanical mixer. Hand mixing is not acceptable.

4. Permit mixed mortar to stand for a minimum of one (1) hour and a maximum of 1-1/2 hours for pre-hydration of cementitious materials to reduce shrinkage.

5. Add sufficient water to bring mortar to proper consistency for tuckpointing, somewhat drier than mortar used for laying masonry units. Mix by hand for three (3) to five (5) minutes.

6. Use mortar within 2-1/2 hours of its initial mixing. Retemper mortar within this time limit as needed to replace evaporated water but not after mortar has begun to set. Discard mortar that is not used within 2-1/2 hours of initial mixing (1 to 1-1/2 hours after pre-hydration) and properly dispose of off-site.

## 3.02 PREPARATION FOR UNIT MASONRY REPLACEMENT

A. Mortar Mixing

1. Use power-driven on-site mixing equipment. Hand mixing is not acceptable.

2. Accurately proportion mix materials by volume. Provide calibrated containers and scales at site for proper proportioning.

3. Mix ingredients in a mechanical batch mixer in the following sequence:

   a. To an operating mixer, add 2/3 of the water, followed by 1/2 of the sand.

   b. Then add all of the cementitious materials.

   c. Add the remaining sand.

   d. Slowly add the remaining water as needed to produce a workable consistency.

   e. After the last water is introduced, mix for 3 to 5 minutes.

4. Re-temper mortar to replace water lost by evaporation, but not after mortar has begun to set.

5. Discard mortar that has begun to stiffen or is not used within 2-1/2 hours after initial mixing and properly dispose of off-site.

## 3.03 APPLICATION OF REPOINTING MORTAR

A. Use a tuckpointing trowel that is slightly narrower than the mortar joints being filled.

B. Point head joints before pointing bed joints.

C. Spread mortar into joint in approximately 1/4-inch layers. Tightly compress each layer to prevent voids. Fill joints to the outside surface of the brick units.

D. When mortar is thumbprint hard, compact joints with a concave tool that is wider than joint.

E. Protect freshly placed mortar from sun and drying winds. When ambient temperature exceeds 100 degrees F, or exceeds 90 degrees F with winds in excess of 8 miles per hour, cover masonry with plastic sheeting or apply a fine water-fog spray for four (4) days.

## 3.04 INSTALLATION OF REPLACEMENT MASONRY UNITS AND RECONSTRUCTION AT NEW EXPANSION JOINTS

A. Comply with referenced unit masonry standard and other requirements indicated herein as applicable to each type of installation included in Project.

B. Match wall thickness, coursing, bonding, color, and texture of new masonry with existing adjacent masonry. When reconstructing masonry, use masonry headers to tie the multiple wythes.

C. Provide unit masonry construction aligned, plumb and true in required layout, making straight level courses. Lay up walls to comply with specified construction tolerances in MSJC, with courses accurately spaced and coordinated with other construction.

D. Place clean units while mortar is soft and plastic. Remove units disturbed to the extent that initial bond is broken after initial positioning, and re-lay in fresh mortar.

E. Mortar Bedding and Jointing for CMU

1. Solidly fill concrete masonry unit bed and head joints with mortar. Fill holes not specified in masonry with mortar.

2. Construct head joints by shoving mortar tight against adjoining unit. Do not fill head joints by slushing with mortar.

3. Do not deeply furrow masonry bed joints.

4. Tool joints with a round jointer when mortar is thumbprint hard.

F. Maintain expansion joint clear of mortar and other non-compressible materials by placing compressible foam sheets in the joint.

1. Remove units from the exterior wythe and the interior wythe to expose the center wythe.

2. Extend expansion joint down to top of window lintel carefully sawcutting through the center brick wythe to form 3/8” wide joint. Do not damage the flashing or steel.

3. Reconstruct the interior and exterior brick wythes, forming an expansion joint that is offset from the joint in the center wythe.

## 3.05 INSTALLATION OF REMEDIATION ANCHORS

A. Mark locations for anchors starting at 12 inches from the bottom of the masonry and at 24 inches on center. Mark the uppermost location at no more than 12 inches from the top of masonry.

B. Using a rotary percussion drill (3-jaw-chuck type), drill 295 mm (11.6 inch) long hole, 5 to 6 mm in diameter, into the masonry at “T” intersections of mortar joints at each marked location.

C. Using an electric hammer drill (SDS type) with manufacturer’s insertion tool attached, power-drive the anchor into position until its outer end is recessed behind the outside face of the mortar joint by the insertion tool.

D. Repoint the hole in the mortar.

## 3.06 CONCRETE SILL JOINTS

A. Completely remove existing sealant, backing, and mortar from the head joints in the concrete sills where shown on the drawings.

B. Clean surfaces in accordance with sealant manufacturer’s instructions.

C. Install backer rod in accordance with Section 07 9213.

D. Prime the joint surfaces, install sealant and tool in accordance with Section 07 9213.

## 3.07 CLEANING

A. Remove loose mortar particles with a soft bristle brush after mortar has dried but not hardened.

B. Scrape off hardened mortar with a piece of similar masonry unit or a wooden paddle. Use of metal scrapers or brushes is not permitted.

C. After mortar has cured, clean with water and a stiff brush, if needed. Do not use acid solutions or masonry cleaning solutions unless approved in writing by Engineer.

**END OF SECTION**

# SECTION 07 07 13

# PENETRATING CONCRETE COATING

## PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This work consists of furnishing and applying concrete surface coating to concrete wall units (CMU) at locations as specified on the plans. Ensure all work and materials are in accordance with the standard specifications, except as modified herein.

1.02 MEASUREMENT AND PAYMENT PROCEDURES:

A. The drawings indicate an estimated quantity for a particular work item, payment will be based upon actual quantity of work completed and agreed to by Contractor, Engineer, and the Company.

B. Contractor shall maintain records of work quantities for review and Engineer approval.

C. The completed work, as described, will be measured and paid for at the contract unit price (Square Feet).

1.03 RELATED SECTIONS

A. Section 03 3130 – Concrete Restoration/Repair

B. Section 04 0120 – CMU Restoration

C. Section 07 9213 – Joint Sealants

1.04 REFERENCE STANDARDS

A. ASTM D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.

B. ASTM D4285 - Standard Practice for Indicating Oil or Water in Compressed Air.

C. International Concrete Repair Institute Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays (Guideline No. 310.2R-2013).

## 1.05 SUBMITTALS

A. Comply with Section 01 3300 – Submittal Procedures

B. Product Data: Provide data indicating chemical characteristics, performance criteria, substrate preparation, limitations,

C. Submit manufacturer's specifications and installation instructions for each item of material used, showing compliance with these Specifications.

D. Submit written warranty as required by Article 1.08 of this Section.

## 1.06 QUALITY ASSURANCE

A. Contractor must demonstrate qualifications to perform the work of this section by submitting the following documentation:

1. List of at least three (3) projects, satisfactorily completed within the past five (5) years of similar scope and complexity. Reference the experience submittal to specific material proposed.

B. Include all components and materials from the single source manufacturer.

C. Use manufacturers' technical staff for assistance with product application and final assembly inspections.

D. Upon request, the manufacturer's representatives will meet with interested parties at the jobsite to review and discuss project conditions as it relates to the integrity of the concrete coating.

## 1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in a clean, dry area in accordance with manufacturer's instructions.

C. Store at temperatures according to manufacturer specifications.

D. Protect materials during handling and application to prevent damage or contamination.

## 1.08 WARRANTY

A. Upon completion of the work, the contractor shall supply the owner with a single-source warranty of U.S. origin direct from the manufacturer.

B. Contact the manufacturer for exact warranty terms and conditions to meet the specific project requirements.

C. Provide a signed written warranty, agreeing to replace defective materials and workmanship for concrete coating. The warranty shall be effective after date of substantial completion of the work.

D. Upon notification of application defects, make necessary repairs or replacement at no cost to Owner and at convenience of Owner. Perform repairs in accordance with requirements of these Contract Documents.

## PART 2 - PRODUCTS

2.01 GENERAL

A. Select concrete surface coating materials from the products listed herein.

1. Benjamin Moore Super Spec Masonry 100% Acrylic Elastomeric Coating Flat 056 Carboline Company Carbocrylic 3350

2. ICI Dulux Paints Decra-Flex 300

3. O'Leary Paint Company O'Leary 1375 Elastomeric

4. PPG Idustries, Inc. Perma-Crete Pitt-Flex Elastomeric Coating 4-110 Sherwin-Williams Concrete Texture Coating Smooth B97-160 Series Sika Corporation Elastocolor

5. Sika Corporation Sikagard 550W Elastic

6. Tamms Industries Tammolastic

## PART 3 – EXECUTION

3.01 SURFACE PREPARATION

A. Cure of new concrete/mortar a minimum of 28 days before coating. Following the curing period, and prior to coating, test for moisture content in the mortar/concrete and new installed CMU as described below.

B. Ensure all mortar/concrete and CMU to be coated is tested for the presence of moisture after surface preparation has been completed and prior to application of the coating. Ensure testing is in accordance with ASTM D4263. Tape an 18 inch by 18 inch sheet (4 mil) of transparent polyethylene to the concrete surface to be coated. Ensure all edges are sealed with tape that will stick to the mortar/concrete and CMU substrate and not allow the infiltration of air. Leave the plastic sheet in place a minimum of 16 hours to detect the presence of moisture in the concrete of CMU and mortar. Ensure there is no moisture visible on the polyethylene sheet

after the minimum period of time has elapsed for coating work to begin. Ensure this is verified by the Engineer before application of the coating begins. This test may not be reliable in cooler conditions. Ensure alternate methods to detect moisture are approved by the Engineer. Perform this test a minimum of once every 100 feet on walls. Prepare the surface, including removing fins and projections and filling surface voids and cracks (if required), in accordance with manufacturer's recommendations, except as modified by this special provision.

C. Ensure the surface to be coated is dry and free from all contamination including, but not limited to: dirt, form release agents, oil, grease, laitance, loose material and curing compounds. Clean the surface by low-pressure water cleaning, steam cleaning, or abrasive blasting (followed by oil-free moisture-free compressed air cleaning) or by combination to achieve an acceptable cleaned surface. When low-pressure water cleaning or steam cleaning is used, ensure the concrete surface profile (CSP) is CSP 1 in accordance with the International Concrete Repair Institute Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays (Guideline No. 310.2R-2013). When abrasive blasting is used, ensure the concrete surface profile is CSP 2 to CSP 4. Low- pressure water or steam cleaning primarily removes water soluble contaminants. Aged concrete/mortar or CMU with contaminants such as hardened curing compound may require light abrasive blasting to completely remove the contaminant. Since many curing compounds contain wax, remove even well adhered residue prior to coating to ensure a good bond between the surface coating and the concrete.

D. Verify that the compressed air used for any work is free of oil and moisture contamination in accordance with ASTM D4285. Use either an absorbent or a nonabsorbent white collector positioned within 24 inches of the air-discharge point, centered in the air stream. Allow air to discharge onto the collector for a minimum of 1 minute. Visually examine the collector for the presence of oil and/or water. Conduct the test at least one time per shift for each compressor system in operation in the presence of the Engineer. If air contamination is evident, make adjustments to achieve clean, dry air. Examine the work performed since the last acceptable test for evidence of defects or contamination due to contaminated compressed air. Repair contaminated work at no additional cost to the contract.

E. When low pressure water cleaning or steam cleaning is used, the power washer must deliver 3000 - 4500 pounds per square inch (psi) and utilize a 15 degree or smaller nozzle tip held perpendicular to the surface being cleaned. When using light abrasive blasting to remove contaminants on new construction, be careful not to remove excessive concrete/mortar material.

## 3.02 VISUAL INSPECTION

A. Check surface cleanliness by lightly rubbing with a dark cloth or by pressing translucent adhesive tape onto the concrete surface in the presence of the Engineer. An acceptable level of residual dust can be agreed upon by the Engineer

and the Contractor. Perform a water drop test in the presence of the Engineer prior to coating the CMU surface to detect for the presence of any hydrophobic contaminants. Hydrophobic contaminants include materials such as form release agents, curing compounds, oil, grease, wax, and resins. If contaminants are detected, as evidenced by a lack of rapid absorption of the water drop into the mortar/concrete and CMU, remove the contaminants, and perform the tests again until no contaminants are detected.

3.03 APPLICATION

A. Apply two coats (do not dilute) of the acrylic based concrete surface coating. Apply each coat to provide the minimum wet film thickness as recommended by the manufacturer. A primer is not required unless stated as required in the manufacturer's product data sheet. Temperature limitations of the air, coating material and CMU for application will follow manufacturer's recommendations but must not be outside the temperature range of 45 to 90 degrees Fahrenheit (F) and ensure the temperature of the air, coating material and concrete is at least 5 degrees F above the dew point and rising. Do not apply the concrete surface coating at a relative humidity greater than 90 percent or if rain is forecasted within the specified rain resistance period.

**END OF SECTION**

# SECTION 07 14 16

# COLD-FLUID APPLIED WATERPROOFING

## PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Application of single component, cold applied, liquid waterproofing membrane on the foundation east side of the building. Refer to drawings for the location.

1.02 MEASUREMENT AND PAYMENT PROCEDURES:

A. The drawings indicate an estimated quantity for a particular work item, payment will be based upon actual quantity of work completed and agreed to by Contractor, Engineer, and the Company.

B. Contractor shall maintain records of work quantities for review and Engineer approval.

1.03 RELATED SECTIONS

A. Section 03 3130 – Concrete Restoration/Repair

B. Section 04 0120 – CMU Restoration

C. Section 07 9213 – Joint Sealants

D. Section 33 4613 – Foundation Drainage

1.04 REFERENCE STANDARDS

A. ASTM C1250 – Standard Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.

B. ASTM C836 - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.

C. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension.

D. ASTM D2240 - Standard Test Method for Rubber Property—Durometer Hardness.

E. ASTM D2369 - Standard Test Method for Volatile Content of Coatings

1. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

1.05 SUBMITTALS

A. Comply with Section 01 3300 – Submittal Procedures

B. Product Data: Provide data indicating chemical characteristics, performance criteria, substrate preparation, limitations,

C. Submit manufacturer's specifications and installation instructions for each item of material used, showing compliance with these Specifications.

D. Submit written warranty as required by Article 1.10 of this Section.

1.06 QUALITY ASSURANCE

A. Contractor must demonstrate qualifications to perform the work of this section by submitting the following documentation:

1. Certification or license by the membrane manufacturer as a locally based, authorized applicator of the product the installer intends to use, for a minimum of five (5) years.

2. List of at least three (3) projects, satisfactorily completed within the past five (5) years of similar scope and complexity. Reference the experience submittal to specific membrane system proposed.

B. Include all components and materials from the single source manufacturer.

C. Use manufacturers' technical staff for assistance with product application and final assembly inspections.

D. Upon request, the manufacturer's representatives will meet with interested parties at the jobsite to review and discuss project conditions as it relates to the integrity of the waterproofing assembly.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in a clean, dry area in accordance with manufacturer's instructions.

C. Store at temperatures between 40° - 70° F (4° - 21° C).

D. Protect materials during handling and application to prevent damage or contamination.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Product not intended for uses subject to abuse or permanent exposure to the elements.

B. Do not apply membrane when air, material, or surface temperatures are expected to fall below 30° F (-1° C) within four hours of completed application.

C. Do not apply membrane if rainfall is forecast or imminent within 12 hours.

D. Do not apply waterproofing membrane to any surfaces containing frost.

E. Consult manufacturer for applications to green concrete.

1.09 MOCK-UP INSTALLATION

A. Prior to installation of waterproofing membrane, apply waterproofing membrane to 100 ft.$^2$ of deck or wall to demonstrate surface preparation, crack and joint treatment, corner treatment, thickness, and to demonstrate tie-ins with adjoining construction, and other termination conditions, as well as qualities of materials and execution.

B. Cooperate and coordinate with the owner's inspection and testing agency. Do not cover any installed waterproofing membrane unless it has been inspected, tested and approved.

1.10 WARRANTY

A. Upon completion of the work, the contractor shall supply the owner with a single-source warranty of U.S. origin direct from the manufacturer.

B. Contact the manufacturer for exact warranty terms and conditions to meet the specific project requirements.

C. Provide a signed written warranty, agreeing to replace defective materials and workmanship for waterproofing. The warranty shall be effective after date of substantial completion of the work.

D. Upon notification of application defects, make necessary repairs or replacement at no cost to Owner and at convenience of Owner. Perform repairs in accordance with requirements of these Contract Documents.

## PART 2 - PRODUCTS

2.01 GENERAL

A. Obtain waterproofing materials from the manufacturer listed to ensure total system compatibility and integrity.

1. W. R. MEADOWS®, INC., PO Box 338, Hampshire, Illinois

2. TREMproof® 260, by Tremco of Beachwood, OH

3. Sikalastic® HLM 5000 GC, by Sika Corporation of Lyndhurst, NJ

2.02 ACCESSORIES

A. Joint Tape: 6” (150 mm) wide reinforcing fabric for corners, crack, and joint treatment.

1. REINFORCING FABRIC HCR by W. R. MEADOWS, or engineer approved equivalent.

B. Reinforcing Fabric for High Build Applications: REINFORCING FABRIC HCR by W. R. MEADOWS, or engineer approved equivalent.

C. Reinforced Joint Tape for outside corners subject to backfill.

1. PRECON® FABRIC TAPE by W. R. MEADOWS, or engineer approved equivalent.

D. Epoxy Primer: REZI-WELD™ LV or REZI-WELD LV STATE by W. R. MEADOWS, or engineer approved equivalent.

E. Detailing Membrane: BEM by W. R. MEADOWS, or engineer approved equivalent.

F. Concrete Repair Materials: MEADOW-PATCH® 5 and 20 Concrete Repair Mortars or engineer approved equivalent.

G. Waterproofing Protection Course: PERMINATOR® or PROTECTION COURSE, or engineer approved equivalent.

H. Rolled Matrix Drainage System: MEL-DRAIN™, or engineer approved equivalent.

## PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive membrane. Notify engineer and owner's representative if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

A. Protect adjacent surfaces not designated to receive waterproofing.

B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions.

C. Do not apply waterproofing to surfaces unacceptable to manufacturer.

D. Clean concrete surfaces so they are free of all coatings, dirt, oil, paints and any other contaminants.

E. Patch all holes and voids and smooth out any surface misalignments.

F. Remove and patch all concrete form ties.

G. Priming: For porous substrates where air and/or moisture release may cause pinhole or blister problems to occur in the applied membrane, priming the substrate prior to application of waterproofing is recommended. Priming is recommended to remove trapped air/vapor from the substrate and promote a better bond with the substrate. Notify engineer prior to application/use of priming.

H. Treatment of Existing Cracks and All Non-Structural Joints

1. Identify and install detailing membrane in all cracks and all non-structural joints.

2. Apply a 30 wet mil coat of the fluid applied membrane ensuring that there is a minimum of 3" (75 mm) of membrane extending onto the wall in all directions.

3. Embed the non-woven reinforcing fabric over the entire area of this membrane and work in using trowel.

4. Completely cover the glass mesh with a second coat of the fluid applied membrane at 30 wet mils while the first coat is still wet, again extending 3" onto the wall in all directions.

I. Treatment of Inside & Outside Corners

1. Install detailing membrane to create a minimum ¾” (25.4 mm) fillet in all inside corners.

2. Apply a 30 wet mil coat of the fluid applied membrane ensuring that there is a minimum of 3” (75 mm) of membrane extending onto the wall in all directions.

3. Embed the non-woven reinforcing fabric over the entire area of this membrane and work in using trowel.

4. Completely cover the glass mesh with a second coat of fluid applied membrane at 30 wet mils while the first coat is still wet, again extending 3” (75 mm) onto the wall in all directions.

5. On outside corners subject to backfilling, install reinforced joint tape in lieu of fabric joint tape following the same procedure.

3.03 APPLICATION

A. Apply waterproofing membrane in accordance with manufacturer's instructions.

B. Gently mix membrane prior to application.

C. Apply membrane by trowel, flat-blade squeegee, or roller, at a minimum coverage rate of 25 $ft.^2$/U.S. gal (2.3 $m^2$/3.78 L), providing a thickness as per manufacturer guidelines.

D. If a two-coat application is required, follow manufacturer guidelines to achieve the minimum total thickness. Fully embed the reinforcing fabric into the first coat of material.

E. Frequently inspect surface area to ensure proper adhesion and consistent thickness is achieved.

F. Work material into any fluted rib forming indentations.

G. Provide minimum cured membrane thickness of 60 mils dry.

3.04 PROTECTION

A. Protect membrane with application of waterproofing protection course, drainage board, or other approved material.

B. Backfill immediately using care to avoid damaging waterproofing membrane system.

**END OF SECTION**

# SECTION 07 62 02

# METAL FLASHINGS FOR ROOFING

## PART 1 – GENERAL

1.01 SUMMARY

A. Section includes specifications and requirements for metal flashings and accessories.

1.02 FIELD CONDITIONS AND DIMENSIONS

A. Prior to ordering materials, or doing any work, verify at the site all dimensions, details, and conditions that may affect the work. No allowance for additional compensation will be considered for discrepancies between dimensions indicated in the specifications and drawings and actual field dimensions, or for the Contractor's failure to comply with this requirement.

1.03 CONFLICTS

A. Immediately refer any conflicts among requirements of these specifications and drawings, those of regulatory agencies, material manufacturer recommendations, and good roofing practices to the Owner for resolution.

## PART 2 – PRODUCTS

2.01 METAL ACCESSORIES

A. Prefinished galvanized steel: G-90, Kynar 500 coating, 24 gauge; metal color as selected/approved by the Owner (excluding premium-cost finishes). Use for the following metal components where indicated:

1. Gutters and downspouts:

a. Gutters: 6-inch (front depth) x 8-inch (width); fabricate a one-piece (with integral roof flange) gutter in 10-foot maximum length sections, to dimensions indicated on drawings.

b. Downspouts: 3-inch x 4-inch (square); fabricate downspouts in accordance with SMACNA Figure 1-32B. Fabricate downspout hangers in accordance with SMACNA Figure 1-35G.

B. Non-galvanized steel: ASTM A36/A36M (or A529 Grade 50):

1. Bracket (for gutters): 3/16-inch by 1-inch.

2. Spacers (for gutters): 1/16-inch by 1-inch, with 180-degree twist.

2.02 FASTENERS

A. For aluminum and galvanized: Galvanized or cadmium-plated steel fasteners. Where fastener heads are exposed, provide EPDM-gasketed metal washers.

2.03 MISCELLANEOUS

A. Gutter seal (for gutter joints): "Gutter Seal" elastomeric gutter sealant, manufactured by Tremco Commercial sealants and Waterproofing.

B. Gutter bracket and spacer primer and paint:

1. For non-galvanized steel gutter brackets and spacers: Rust-inhibiting primer and compatible paint; products suitable for non-galvanized steel; finish paint color to match gutter color.

## PART 3 – EXECUTION

3.01 INSTALLATION

A. Gutters and downspouts:

1. Gutters: Install gutters at locations shown on the drawings. Install gutters in 10-foot maximum length sections.

a. Laps and expansion joints: Provide 1-inch laps; apply sealant at the laps and rivet 1-inch on center.

b. Bracket and spacers: Prior to installation, prime (one coat) and paint (two coats) steel gutter brackets and spacers. Apply primer and paint in accordance with the requirements and recommendations of the primer and paint manufacturer(s). Set the new gutter in brackets spaced 30-inches o.c. (or at 24-inches o.c., if necessary to attain adequate screw retention into truss/rafter tails). Install gutter spacers staggered at midpoint between the brackets.

2. Gutter flange: Stagger-nail the flange 3-inches on center in two rows.

3. Gutter seal: Install the specified sealant over the inside gutter joints. Install in accordance with the requirements and recommendations of the gutter seal manufacturer.

4. Downspouts: Install downspouts and hangers at locations of existing discarded downspouts and hangers. Secure downspouts and hangers as shown in specified SMACNA guidelines.

**END OF SECTION**

# SECTION 07 90 05

# PAVEMENT JOINT SEALANTS

## PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, materials, equipment, supervision and incidentals necessary to prepare surfaces and install joint backing and joint sealant.

1.02 RELATED SECTIONS

A. Section 32 1216 - Asphalt Paving

B. Section 32 1313 - Concrete Pavement

1.03 REFERENCES

A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.

B. ASTM C1193 - Standard Guide for Use of Joint Sealants.

C. ASTM D1667 - Standard Specification for Flexible Cellular Materials—Poly (Vinyl Chloride) Foam (Closed-Cell).

D. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).

E. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Certifications: Letter of certification from sealant manufacturer indicating that sealant product is compatible with the backing materials and joint substrates.

1.05 QUALITY ASSURANCE

A. Maintain one copy of each referenced document covering installation requirements on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

C. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials to comply with manufacturer's written instructions and to prevent deterioration and damage due to moisture, high or low temperatures, contaminants, and other causes.

1.07 PROJECT CONDITIONS

A. Install sealant under temperature and humidity conditions that are recommended by the sealant manufacturer.

1. Do not install sealants when ambient or substrate temperatures are below 40 degrees F.

2. Do not install sealants when joint substrates are wet.

B. Do not install sealants when the joint width is less than that allowed by sealant manufacturer for the application indicated.

## PART 2 - PRODUCTS

2.01 SEALANTS

A. Cold-Applied Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; single component.

1. Subject to compliance with requirements, approved products include:

a. Sikasil-728 SL by Sika.

B. Hot-Applied Paving Sealant: ASTM D6690, single component.

1. Subject to compliance with requirements, approved products include:

a. Roadsaver 221 by Crafco Inc.

b. Hot-applied Polymeric Joint Sealant #3405 by W. R. Meadows, Inc.

2.02 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing for Cold-Applied Sealant: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

D. Joint Backing for Hot-Applied Sealant: ASTM C1751 asphalt saturated fiberboard; thickness and width as required, to control sealant configuration.

**PART 3 - EXECUTION**

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work and are compliant with joint configuration and size tolerance requirements.

B. Verify that joint backing is compatible with sealant.

C. Do not proceed with sealant installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant and effective joint width.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions, unless more stringent requirements are provided herein.

B. Perform installation in accordance with ASTM C 1193.

C. Install backer materials to support sealants during application and at positions required to produce cross-sectional shapes and depths of installed sealant relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of backer materials.

2. Do not stretch, twist, puncture, or tear backer materials.

3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

D. Install sealants by proven techniques to comply with the following and at the same time that backer materials are installed:

1. Place sealants so that they directly contact and fully wet joint substrates.

2. Completely fill recesses provided for each joint configuration.

E. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:

1. Width/depth ratio of 2:1.

2. Neck dimension no greater than 1/3 of the joint width.

3. Surface bond area on each side not less than 75 percent of joint width.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Apply sealant within recommended application temperature ranges and weather conditions. Do not apply sealant if these conditions are not expected to prevail until the sealant has cured to a point that it will not be adversely affected. Consult manufacturer when sealant cannot be applied within these temperature ranges and weather conditions.

H. Tool joints concave in a manner approved by the sealant manufacturer.

3.04 CLEANING

A. Clean adjacent soiled surfaces as the Work progresses.

B. Use methods and materials that are approved by the sealant manufacturer.

3.05 PROTECTION OF FINISHED WORK

A. Protect sealants until cured.

B. Cut out and replace damaged and deteriorated joint sealants immediately so that repaired areas are indistinguishable from the original work.

**END OF SECTION**

# SECTION 07 92 13

# ELASTOMERIC JOINT SEALANTS

## PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Sealant and joint backing at penetrations and expansion joints.

B. Sealant between metal flashing and masonry wall.

1.02 MEASUREMENT AND PAYMENT PROCEDURES:

A. The drawings indicate an estimated quantity for a particular work item, payment will be based upon actual quantity of work completed and agreed to by Contractor, Engineer, and the Company.

B. Contractor shall maintain records of work quantities for review and Engineer approval.

1.03 REFERENCE STANDARDS

A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants

B. ASTM C1193 - Standard Guide for Use of Joint Sealants

C. ASTM C1248 – Standard Test Method for Staining of Porous Substrate by Joint Sealants

D. ASTM D1667 - Standard Specification for Flexible Cellular Materials--Poly (Vinyl Chloride) Foam (Closed-Cell)

1.04 SUBMITTALS

A. See Section 01 3300 – Submittal Procedures

B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability

C. Submit manufacturer's specifications and installation instructions for each item of material used, showing compliance with these Specifications.

D. Submit manufacturer's standard colors available for each type of sealant specified.

E. Submit written warranty as required by Article 1.07 of this Section.

F. For each sealant that will be in contact with precast concrete, submit a test report that indicates that the sealant will not result in staining of the concrete when tested in accordance with ASTM C1248.

1.05 QUALITY ASSURANCE

A. Maintain one copy of each referenced document covering installation requirements on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.

C. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years experience.

D. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with specified requirements and methods needed for proper performance of Work of this Section.

1.06 FIELD CONDITIONS

A. Apply the materials of this section in temperature and humidity conditions recommended by the sealant manufacturer during and after installation. For application in cold or hot conditions provide temporary protection with controlled conditions.

1.07 WARRANTY

A. See Section 01 7700 - Closeout Submittals, for additional warranty requirements.

B. Provide a signed 5-year written warranty, agreeing to replace defective materials and workmanship for sealant joints. Warranty shall be effective after date of substantial completion of the work. Defective materials and workmanship are defined to include the following:

1. Instances of leakage of water or air.

2. Failures in joint adhesion, material cohesion, weather resistance, extrusion-from-joint resistance, strain resistance, and general durability.

3. Failure to cure.

C. Upon notification of such defects, make necessary repairs or replacement at no cost to Owner and at convenience of Owner. Perform repairs in accordance with requirements of these Contract Documents.

## PART 2 - PRODUCTS

2.01 SEALANTS

A. Sealant and joint backing at masonry penetrations, expansion joints, control joints, between sill units: Two-part, premium grade, elastomeric polyurethane sealant, 50% compression/elongation, colors to be selected by Company. Acceptable products include:

1. Sika Flex 2c NS, by Sika Corporation of Lyndhurst, NJ

2. Dymeric 240FC, by Tremco of Beachwood, OH

3. MasterSeal NP2, by Master Builders Solutions of Shakopee, MN

B. Sealant below metal drip edge at masonry through-wall flashing: One-part, premium grade, elastomeric polyurethane sealant, color to be selected by Company. Acceptable products include:

1. MasterSeal NP1, by Master Builders Solutions of Shakopee, MN

2. Sikaflex-1a, by Sika Corporation of Lyndhurst, NJ

3. Dymonic 100, by Tremco of Beachwood, OH

C. Concealed Sealant Bead in Overlaps of Sheet Metal Flashing or Drip Edges: Butyl Sealant: ASTM C920, Grade NS, Class 12-1/2, Uses NT, M, A, G, O; single component, solvent release, non-skinning, non-sagging.

2.02 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant and approved by sealant manufacturer; ASTM D1667, closed cell, compressible, non-extruding, non-staining; oversized 35 to 50 percent larger than joint width.

## PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces and conditions under which sealant work is to be performed. Notify Engineer immediately in writing of conditions detrimental to proper

completion of the Work. Do not proceed with sealant work until unsatisfactory conditions have been corrected.

B. Verify that substrate surfaces and joint openings are ready to receive work.

C. Verify that joint backing is compatible with sealant.

3.02 PREPARATION

A. Verify that mortar has been removed to sufficient depth to permit proper installation of sealant and backer rod at concrete sill joints. Verify that mortar has been removed from masonry expansion joints and that all non-compressible materials are removed from within the joint.

B. Remove loose materials and foreign matter that could impair adhesion of sealant.

C. Remove existing caulking and backer rod from joints that are scheduled for sealant replacement.

D. Provide joints and surfaces to receive sealant that are dry, clean, and free of all debris, dirt, dust, curing compounds, remnant sealant, laitance, and other contaminants.

1. Clean joints and surfaces using wire brushing, scrubbing, or other methods to expose a clean, sound surface.

E. Perform preparation in accordance with manufacturer's instructions and ASTM C1193. Prime side surfaces in accordance with sealant manufacturer's recommendations to ensure adequate bond. Consult sealant manufacturer for priming requirements and materials.

F. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:

1. Width/depth ratio of 2:1

2. Neck dimension no greater than 1/2 of the joint width or 1/4 inch minimum.

3. Surface bond area on each side not less than 75 percent of joint width.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags. Apply in a continuous operation with adequate pressure to fill joint to proper width and depth. Do not overfill joint.

E. At laps in drip edge, provide a minimum of 2 beads of butyl sealant perpendicular to the length of the flashing.

F. Apply sealant within recommended application temperature ranges and other environmental conditions required by the sealant manufacturer. Consult manufacturer when sealant cannot be applied within these environmental conditions.

G. Tool exposed joints concave in accordance with manufacturer's recommendations immediately after application to ensure positive and complete contact of sealant with sides of joint.

H. Cure in accordance with sealant manufacturer's recommendations.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

B. Remove excess sealant and smears to provide a neat appearing joint. Use cleaning methods and materials recommended by sealant manufacturer.

C. If "ghosts" of bond lines from previous sealant beads are evident, remove them. Employ procedures that will not damage the metal finish or the masonry finish. Refer uncertainties to the Engineer.

3.05 PROTECTION

A. Protect sealants until cured.

**END OF SECTION**

## SECTION 22 00 00

## PLUMBING BASIC REQUIREMENTS

### PART 1 – GENERAL

1.01 SUMMARY

A. This Section specifies the general requirements for all of the plumbing materials, labor, tools, permits, incidentals, and other services included in Division 22 and wherever specifically mentioned in the Specifications. All equipment and performance in this Section are of a minimum quality of design. The Supplier is responsible for the design and supply of all equipment, their selection and sizing

B. Additional requirements for plumbing systems shall be as shown in the drawings

C. Authorities Having Jurisdiction: Indicates reviewing authorities, including local building official, local fire marshal, OWNER, and other reviewing entity whose approval is required to obtain system acceptance.

D. Governing Standards:

1. Except as modified or supplemented herein, all Work covered by this section shall be performed in accordance with all applicable municipal codes and ordinances, laws, and regulations. In case of a conflict between this section and any state law or local ordinance the more stringent requirements shall govern.

2. All Work shall conform to the requirements of AGA, ASME, ASSE, ASTM, NSF, NFPA, and UL safety requirements

1.02 COORDINATION

A. Coordinate with site layout for incoming water and outgoing sewer location. Plumbing Contractor is responsible to route the piping starting approximately 5 feet from the building envelope

1.03 QUALITY ASSURANCE

A. Perform Work in accordance with 2021 Michigan Plumbing Code.

B. Comply with the rules and regulations of Authorities Having Jurisdiction over the

Work specified herein, including all adopted state and local building codes including plumbing, mechanical, fire, building, and electrical.

1.04 SUBMITTALS

A. Action Submittals

1. Manufacturer's data including materials of construction, construction details of equipment, wiring diagrams, weight of equipment, mounting, seismic bracing, and support.

2. Drawings showing general dimensions and confirming the size of equipment, fixtures, motors and drives, and piping connections (Shop Drawings).

3. Performance curves for pumps developed for the specific application. Performance curves shall show speed, capacity, pressure, and power for specified conditions.

4. Shop and field painting systems. Include manufacturer's descriptive technical catalog literature and specifications.

5. Shop Drawings including the physical characteristics of all systems, equipment, and piping layout plans, and control wiring diagrams.

1.05 PERFORMANCE REQUIREMENTS

A. Equipment and products shall meet the minimum performance requirements identified in the Division 22 specification sections.

B. The plumbing system installer shall be licensed as stipulated by the authority having jurisdiction.

C. All fixtures and equipment shall be designed to meet the performance and design conditions specified herein and indicated on the Drawings.

D. Dimensional Restrictions:

1. Layout dimensions will vary between manufacturers and the layout area indicated on the Drawings is based on typical values.

2. Supplier shall review the contract Drawings, the manufacturer's layout draw-

ings, and installation requirements and shall make any modifications required for proper installation subject to acceptance by the Engineer.

1.06 APPURTENANCES

A. Furnish and install all necessary guides, inserts, anchors and assembly bolts, washers and nuts, hangers, supports, gaskets, couplings, and flanges; and all other appurtenant items shown on the Drawings, specified, or required for the proper installation and operation of the piping; devices included in or on the piping equipment; and piping accessories.

**PART 2 – PRODUCTS**

2.01 SERVICE CONDITIONS

A. All equipment shall be designed and selected to meet the specified conditions.

2.02 MANUFACTURERS AND FABRICATION

A. Provide like items from one manufacturer, including but not limited to fixtures, pumps, drains, and cleanouts.

B. Unless the equipment manufacturer is specifically named in this section, the manufacturer shall have furnished equipment of the type and size specified which has been in successful operation for not less than the past 5 years.

2.03 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers shall be as listed in the respective product description paragraphs.

2.04 MATERIALS

A. Materials, equipment, and fixtures used for construction are to be new, latest products as listed in manufacturer's printed catalog data and are to be UL, ETL, or CSA approved, or have adequate approval or be acceptable the Authorities Having Jurisdiction.

**PART 3 – EXECUTION**

3.01 INSTALLATION

A. Piping and Valves:

1. Coordinate Work to account for expansion and contraction of piping materials and building as well as anticipated settlement or shrinkage of building. Install Work to prevent damage to piping, equipment, and building and its contents. Provide piping offsets, loops, expansion joints, sleeves, anchors, or other means to control pipe movement and minimize forces on piping. Verify anticipated settlement and/or shrinkage of building. Verify construction phasing, type of building construction products, and rating for coordinating installation of piping systems.

2. Include provisions for servicing and removal of equipment without dismantling piping.

3. Provide unions, couplings, or flanges where equipment is installed in piping. Unions shall be dielectric unions or couplings At points of connection of ferrous to non-ferrous metal piping, unions, couplings, or flanges shall by dielectric type.

A. See the Division 22 specifications sections for additional requirements.

## 3.02 STARTUP REQUIREMENTS

A. System equipment shall be subject to preliminary field tests as indicated in Equipment Startup and Checkout section

## 3.03 FIELD TESTING AND INSPECTIONS

A. Contractor shall test all plumbing systems and arrange for inspection by the Authorities Having Jurisdiction.

B. General:

1. Furnish all equipment, material, personnel, and supplies to perform the tests and make all taps and other necessary temporary connections.

2. Field performance tests shall be conducted for each system to demonstrate each is functioning as specified and to the satisfaction of OWNER’s Representative.

3. All tests shall be conducted in a manner acceptable to OWNER's Representative and shall be repeated as many times as necessary to secure OWNER's Representative acceptance of each system.

4. If inspection or tests indicate defects, the defective item or material shall be replaced, and the inspection and tests shall be repeated.

5. All repairs to piping shall be made with new materials.

6. Caulking of threaded joints or holes will not be acceptable.

**END OF SECTION**

## SECTION 22 05 00

## COMMON WORK RESULTS FOR PLUMBING

### PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Identification for Plumbing Piping and Equipment.

2. Sleeves.

3. Mechanical sleeve seals.

4. Formed steel channel.

5. Firestopping relating to plumbing work.

6. Firestopping accessories.

1.02 SYSTEM DESCRIPTION

A. Firestopping Materials: Comply with requirements of 2021 Michigan Building Code.

1.03 SUBMITTALS

A. Shop Drawings: Submit for piping and equipment identification list of wording, symbols, letter size, and color coding for pipe identification and valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

B. Product Data for Pipe and Equipment Identification: Submit for mechanical identification manufacturers catalog literature for each product required.

C. Product data for Pipe Sleeve, Firestopping Materials, and Accessories: Submit product data from manufacturer for all materials required according to the Contract Drawings.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with 2021 Michigan Plumbing Code.

## PART 2 – PRODUCTS

### 2.01 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

A. Furnish materials in accordance with the 2021 Michigan Plumbing Code.

B. Plastic Nameplates: Laminated three-layer plastic with engraved black letters on light background color.

C. Plastic Tags: Laminated three-layer plastic with engraved black letters on light background color, minimum 1-1/2 inches (38 mm) diameter.

D. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener. Color and Lettering: Conform to ASME A13.1.

E. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings. Color and Lettering: Conform to ASME A13.1.

F. Plastic Underground Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches (150 mm) wide by 4 mil (0.10 mm) thick, manufactured for direct burial service.

### 2.02 SLEEVES

A. Sleeves for Pipes through Non-fire Rated Floors: 18 gage (1.2 mm) thick galvanized steel.

B. Sleeves for Pipes through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage (1.2 mm) thick galvanized steel.

C. Sealant: Acrylic or Silicone.

### 2.03 MECHANICAL SLEEVE SEALS

A. Furnish materials in accordance with the 2021 Michigan Plumbing Code.

B. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

2.04 FORMED STEEL CHANNEL

A. Manufacturers:

1. Allied Tube & Conduit Corp.

2. B-Line Systems

3. Unistrut Corp.

4. Substitutions: Permitted.

B. Furnish materials in accordance with the 2021 Michigan Plumbing Code.

C. Product Description: Galvanized 12 gage (2.8 mm) thick steel. With holes 1-1/2 inches (38 mm) on center.

2.05 FIRESTOPPING

A. Furnish materials in accordance with the 2021 Michigan Building Code.

2.06 FIRESTOPPING ACCESSORIES

A. Installation Accessories: Comply with requirements of Michigan Building Code

**PART 3 – EXECUTION**

3.01 EXAMINATION

A. Verify openings are ready to receive sleeves.

3.02 INSTALLATION - PIPING AND EQUIPMENT IDENTIFICATION

A. Install plastic nameplates with adhesive.

B. Install plastic tags with corrosion resistant metal chain.

3.03 INSTALLATION – SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Extend sleeves through floors 1 inch (25 mm) above finished floor level. Caulk sleeves.

E. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with stuffing or firestopping insulation and caulk air-tight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

F. Install chrome plated steel escutcheons at finished surfaces.

3.04 INSTALLATION – FIRESTOPPING

A. Firestopping Materials: Comply with requirements of 2021 Michigan Building Code.

**END OF SECTION**

## SECTION 22 10 00

## PLUMBING PIPING

### PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Pipe hangers and supports.

2. Pipe and pipe fittings.

3. Valves.

4. Piping specialties.

5. Plumbing drainage specialties.

1.02 QUALITY ASSURANCE

A. Perform Work in accordance with 2021 Michigan Plumbing Code.

B. Comply with the rules and regulations of Authorities Having Jurisdiction over the Work specified herein, including all adopted state and local building codes including plumbing, mechanical, fire, building, and electrical.

1.03 SUBMITTALS

A. Product Data:

1. Pipe Hangers and Supports: Submit manufacturers catalog data including load carrying capacity.

2. Valves: Submit manufacturers catalog information with valve data and ratings for each service.

3. Plumbing drainage specialties: Submit manufacturers catalog information with sizes, capacities, rough-in requirements, service sizes, and finishes.

4. Pumps: Include capacities, pump curves, equipment performance, and electrical characteristics.

B. Pipe Hangers and Supports: Design data, indicate pipe sizes, load carrying capacity of trapeze, multiple pipe, and riser support hangers.

C. Manufacturer's Installation Instructions: Submit installation instructions for material and equipment.

## PART 2 – PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

A. Manufacturers:

1. Carpenter & Paterson Inc.

2. DecoShield Systems Inc.

3. Globe Pipe Hanger Products Inc.

4. Substitutions: Permitted.

B. Furnish materials in accordance with the 2021 Michigan Plumbing Code.

C. Conform to ASME B31.9, ASTM F708, MSS SP 58, MSS SP 69, or MSS SP 89.

D. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron or Carbon steel, adjustable swivel, split ring.

E. Hangers for Pipe Sizes 2 inches and Over: Carbon steel, adjustable, clevis.

F. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

G. Wall Support for Pipe Sizes to 3 inches: Cast iron hook.

H. Wall Support for Pipe Sizes 4 inches and Over: Welded steel bracket and wrought steel clamp.

I. Vertical Support: Steel riser clamp.

J. Floor Support for Cold Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

2.02 PIPES AND TUBES

A. Sanitary Sewer Piping, Buried Within 5 Feet of Building and Sanitary Drainage, Vent and Sewer Piping, above Grade:

1. PVC Pipe: ASTM D2665 or ASTM D3034 SDR 26, polyvinyl chloride (PVC) material.

2. Fittings: PVC, ASTM D2665 or ASTM D3034.

3. Joints: ASTM D2855, solvent weld with ASTM D2564 solvent cement.

2.03 VALVES

A. Manufacturers:

1. Jones Stephens

2. GF Piping Systems

3. Substitutions: Permitted.

B. Furnish materials in accordance with the 2021 Michigan Plumbing Code.

C. Ball Valves:

1. Up to 2 inches : PVC body, PVC ball, EPDM seats and stuffing box ring, tee handle, solvent welded ends.

D. Swing Check Valves:

1. Up to 2 inches: PVC body and swing disc, solvent welded ends.

**PART 3 – EXECUTION**

3.01 EXAMINATION

A. Verify excavations are to required grade, dry, and not over-excavate.

3.02 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside piping before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.03 INSTALLATION - PIPING SYSTEMS

A. Install dielectric connections wherever jointing dissimilar metals.

B. Install unions downstream of valves and at equipment or apparatus connections.

C. Route piping parallel to building structure and maintain gradient.

D. Install piping to maintain headroom. Group piping to conserve space. Group piping whenever practical at common elevations.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

G. Sleeve pipe passing through partitions, walls and floors.

H. Install piping system allowing clearance for installation of insulation and access to valves and fittings.

I. Install identification on piping systems including underground piping. Refer to Section 22 05 00.

J. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

3.04 INSTALLATION – VALVES

A. Install valves with stems upright or horizontal, not inverted.

B. Install gate, ball, or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.

C. Install swing check valves on discharge of pumps.

## 3.05 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as scheduled.

B. Install hangers with minimum 1/2-inch space between finished covering and adjacent work.

C. Place hangers within 12 inches of each horizontal elbow.

D. Use hangers with 1-1/2 inch minimum vertical adjustment.

E. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.

F. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.

G. Support riser piping independently of connected horizontal piping.

H. Design hangers for pipe movement without disengagement of supported pipe.

I. Prime coat exposed steel hangers and supports.

## 3.06 SCHEDULES

A. Pipe Hanger Spacing:

| PIPE MATERIAL | MAXIMUM HANGER SPACING Feet | HANGER ROD DIAMETER Inches |
|---|---|---|
| Cast Iron (All Sizes) | 5 | 5/8 |
| Cast Iron (All Sizes) with 10-foot length of pipe | 10 | 5/8 |

| | | |
|---|---|---|
| CPVC, 1 inch and smaller | 3 | 1/2 |
| CPVC, 1-1/4 inches (32 mm) and larger | 4 | 1/2 |
| Copper Tube, 1-1/4 inches (32 mm) and smaller | 6 | 1/2 |
| Copper Tube, 1-1/2 inches (38 mm) and larger | 10 | 1/2 |
| PVC (All Sizes) | 4 | 3/8 |
| Steel, 3 inches (75 mm) and smaller | 12 | 1/2 |
| Steel, 4 inches (100 mm) and larger | 12 | 5/8 |

**END OF SECTION**

# SECTION 22 14 29

# SUMP PUMPS

## PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:

1. This Section described the work related to procuring, installing, testing, and commissioning of sump pumps.

1.02 RELATED SECTIONS

A. All relevant Division 01 specification sections.

1.03 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings:

1. Include plans, elevations, sections, and mounting details.

2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

4. Include diagrams for power, signal, and control wiring.

5. Include complete performance curves showing capacity versus head, NPSH required pump efficiency, allowable and preferred operating range, and brake horsepower.

C. Operation and Maintenance Data:

1. For pumps and controls, to include in operation and maintenance manuals, including parts list, control diagrams in ladder format, spare parts listing, and recommended schedule of inspection, cleaning and lubrication. Include manufacturer's recommended lubricants.

1.04 WARRANTY

A. The sump pump shall be provided with a standard warranty from the manufacturer Warranty shall be in accordance with Division 01 requirements for warranties.

**PART 2 – PRODUCTS**

2.01 PERFORMANCE REQUIREMENTS

A. Each pumping unit shall be designed for the operating conditions indicated on the drawings and below. Minimum hydrostatic test pressure shall be 1.5 times shutoff head plus max suction pressure.

B. Pump performance shall be stable and free from cavitation and noise throughout the specified operating head range at design suction submergences. Each pumping unit shall be designed so that reverse rotation due to reverse flow will not cause damage to any component.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.02 SUBMERSIBLE SUMP PUMPS

A. Manufacturers:

1. Zoeller

2. ITT Goulds

3. Approved Equal

B. Description: Factory-assembled and -tested sump-pump unit. The pumps shall be free standing submersible pumping units firmly connected to the discharge piping. The pump and connections shall be designed for easy disconnection and capable of being lifted out of the chamber via cable or chain.

1. Pump Type: Submersible, end-suction, single-stage, close-coupled, overhung-impeller, centrifugal sump pump as defined in HI 1.1-1.2 and HI 1.3.

2. Pump Casing: Gray cast iron, ASTM A48, Class 35B., with strainer inlet and threaded connection for NPS 2 and smaller and flanged connection for NPS 2-1/2 and larger discharge piping.

3. Impeller: Statically and dynamically balanced, open vortex design for wastewater handling, and keyed and secured to shaft.

4. Pump and Motor Shaft Coupling: Flexible, capable of absorbing torsional vibration and shaft misalignment.

5. Pump Discharge Piping: Factory or field fabricated, Class 125, ductile-iron flanges and flanged fittings.

6. Support Plate: Cast iron or coated steel; strong enough to support pump.

7. Motor: Single speed; grease-lubricated ball bearings and mounting on vertical, cast-iron pedestal.

B. Controls

1. Sump pump controlled by integral float and switch.

C. Sump Pump Capacities and Characteristics

1. See Sump Pump Schedule located in the Contract Drawings

2. Flow at rated point: 45 gpm

3. Total Dynamic Head (TDH) at rated point: 15 feet

4. Discharge size: 1-1/2 inch
5. Electrical Characteristics: ½ hp, 120 V, Single Phase. 60 Hz, 9.8 FLA

6. Design Basis: Zoeller Model M98

## PART 3 – EXECUTION

3.01 INSTALLATION

A. Pump Installation Standards: Comply with HI 1.4 for installation of sump pumps.

B. Install as per approved shop drawings and in accordance to Contract Documents.

C. Connections:

1. Where installing piping adjacent to equipment, allow space for service and maintenance.

3.02 FIELD TESTING

A. After electrical circuitry has been connected, inspected, and energized, start pump and operate.

B. Testing shall confirm proper operation of pump, check valve, and all other components supplied under this section conform to the Contract Documents.

C. Adjust, repair, modify, or replace components failing to correct all deficiencies. Record all corrective actions. Re-run tests as needed to confirm performance as specified.

**END OF SECTION**

## SECTION 26 05 05

## GENERAL PROVISIONS FOR ELECTRICAL SYSTEMS

### PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope: This section specifies the following:

1. Provide the electrical WORK, complete and operable, as indicated in accordance with the Contract Documents.

B. Coordination:

1. The WORK of this Section is required for operation of electrically-driven equipment provided under Specifications in other Divisions.

2. The CONTRACTOR'S attention is directed to the requirement for proper coordination of the WORK of this Section with the WORK provided under Specifications in other Divisions.

3. Concrete, excavation, backfill, and steel reinforcement required for encasement, installation, or construction of the WORK of the various Sections of Division 26 is included as a part of the WORK under the respective Sections.

1.02 RELATED SECTIONS

A. Section 26 05 33, Electrical Raceway Systems

B. Section 26 05 53, Identification for Electrical Systems

1.03 REFERENCES

A. This Section contains references to the following documents. They are a part of this Section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this Section as if referenced directly. In the event of conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.

B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

1. NEC (NFPA 70) – National Electrical Code
2. NFPA 70E – Standard for Electrical Safety in the Workplace
3. NETA – International Electrical Testing Association
4. NEMA 250 – Enclosure for Electrical Equipment (1000 Volts Maximum)

C. Electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL) or an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.

D. Installation of electrical equipment and materials shall comply with OSHA Safety and Health Standards (29 CFR 1910 and 29 CFR 1926, as applicable), state building standards, and applicable local codes and regulations.

E. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.

1.04 SUBMITTALS

A. See Section 01 30 00 – Administrative requirements.

B. General

1. Custom-prepare Shop Drawings.

2. Drawings or data indicating "optional" or "as required" equipment will not be accepted.

3. Cross out options not proposed or delete from the Shop Drawings.

C. Shop Drawings: Include the following:

1. Complete material lists stating manufacturer and brand name of each item or class of material.

2. Shop Drawings for grounding WORK not specifically indicated.

3. Complete, to scale Layout Drawings of Electrical Systems.

4. Front, side, rear elevations, and top views with dimensional data.

5. Location of conduit entrances and access plates.

6. Component data.

7. Connection diagrams, terminal numbers, internal wiring diagrams, conductor size, and cable numbers.

8. Method of anchoring, seismic requirements, weight.

9. Types of materials and finish.

10. Nameplates.

11. Temperature limitations, as applicable.

12. Voltage requirement, phase, and current, as applicable.

13. Front and rear access requirements.

14. Test reports.

15. Grounding requirements.

D. Catalog Cuts

1. Submit catalog cuts or color photocopies of applicable pages of bulletins or brochures for mass produced, non-custom manufactured material.

2. Stamp the catalog data sheets in order to indicate the applicable Specifications Section and Paragraph, model number, and options.

E. Materials and Equipment Schedules

1. Submit a complete list of materials, equipment, apparatus, and fixtures that are proposed for use.

2. Include in the list the type, size, name of manufacturers, catalog number, and such other information as required to identify the item.

F. Seismic mounting methods are required for all equipment and apparatus. Refer to paragraph 3.1D for additional "EQUIPMENT ANCHORING" requirements.

G. As-Built Drawings

1. Prepare as-built drawings, showing invert and top elevations and routing of duct banks and concealed below- grade electrical installations.

2. Furnish the drawings to the ENGINEER in accordance with the requirements of Submittal Procedures.

1.05 SHIPMENT, PROTECTION AND STORAGE

A. Equipment shipment, protection and storage shall conform to the equipment manufacturer's requirements.

1.06 WARRANTY

A. General Warranty – Refer to General Requirements.

1.07 SIGNAGE AND MARKINGS (See also Section 26 05 53, Identification for Electrical Systems)

A. Identification

1. Provide danger, caution, and warning signs and equipment identification markings in accordance with applicable federal, state, OSHA, and NEC requirements.

B. Local Disconnect Switches

1. Legibly mark each local disconnect switch for motors and equipment in order to indicate its purpose, unless the purpose is indicated by the location and arrangement.

C. Warning Signs

1. 600 Volts Nominal, or Less

a. Mark entrances to rooms and other guarded locations that contain live parts with conspicuous signs prohibiting unqualified persons from entering.

2. Greater than 600 Volts

a. Buildings, rooms, or enclosures containing exposed live parts or exposed conductors operating at greater than 600 volts nominal shall be lockable.

b. Provide permanent and conspicuous warning signs reading as follows: DANGER – HIGH VOLTAGE – KEEP OUT.

3. Mark indoor electrical installations that are open to unqualified persons and contain metal-enclosed switchgear, unit substations, transformers, and other similar associated equipment over 600 volts nominal, with appropriate caution signs.

4. Outside Branch Circuits and Feeders over 600 Volts

a. Post warning signs in plain view where unauthorized persons might come in contact with live parts: WARNING – HIGH VOLTAGE – KEEP OUT.

D. Isolating Switches

1. Provide isolating switches not interlocked with an approved circuit- interrupting device with a sign warning against opening them under load.

1.08 PERMITS AND INSPECTION

A. Obtain permits and pay inspection fees according to the General Conditions.

1.09 TESTS

A. The CONTRACTOR shall be responsible for factory and field tests indicated in Division 26, as required by the ENGINEER, and as required by other authorities having jurisdiction.

B. Furnish necessary testing equipment.

C. Pay the costs of the tests, including replacement parts and labor, due to damage resulting from damaged equipment or from testing and correction of a faulty installation.

D. Reporting

1. Where test reporting is indicated, submit proof-of-design test reports for mass-produced equipment with the Shop Drawings.

2. Submit factory performance test reports for custom-manufactured equipment for approval prior to shipment.

3. Submit field test reports for review as part of Equipment and System Startup and Testing and prior to Substantial Completion.

a. Remove and replace equipment or material that fails a test, or, if the ENGINEER approves, repair and retested for compliance.

b. Corrections to equipment or materials with a factory warranty shall be as recommended by the manufacturer and shall be performed in a manner that does not void the warranty.

1.10 DEMOLITION AND RELATED WORK

A. General

1. Perform electrical demolition WORK as indicated.

2. The CONTRACTOR is cautioned that demolition WORK may also be indicated on non-electrical Drawings.

3. Coordinate with all trades regarding electrical de-energization, disconnection,

and removal, and the overall sequence of construction.

B. Electrical Requirements for Removed Equipment

1. Remove dedicated wiring and exposed conduits back to the source unless wiring is scheduled to be re-used on Contract Drawings.

2. Abandon in place wiring that shares conduits with other equipment wiring, except power wiring. Remove power wiring from the power source to the first pullbox or manhole remote from the panel, and abandon in place the remaining wiring.

3. Encased Conduits

a. Remove dedicated wiring, and install pullcord for future use.

b. Abandon in place wiring that shares conduit with other equipment wiring.

c. Unless otherwise stated on the Contract Drawings, leave conduit where it emerges from encasement up to the first threaded fitting. At the first threaded fitting install a cap with five full threads.

4. Remove remote-mounted starters, disconnect switches, circuit breakers, sensors, and transmitters.

C. Junction Boxes

1. Wiring and conduits indicated to be extended shall be terminated in a new junction box with terminal strips.

2. Provide a junction box with a NEMA rating in accordance with the area in which it is located, and sized as required.

3. Properly identify wires and terminals before disconnection.

D. The drawings indicate specific items to be salvaged and turned over to the OWNER. In addition, the OWNER has the right of first refusal for all other equipment indicated to be removed. Removed materials and equipment not claimed by the OWNER shall, upon removal, become the CONTRACTOR'S property and shall be properly disposed of off-site.

E. Remove and relocate material and equipment indicated to be relocated or reused, and reinstall with care in order to prevent damage.

F. Place materials to be returned to the OWNER in boxes, with the contents clearly marked, and store at a location determined by the OWNER.

G. Identification

1. Where motor control centers and panelboards are indicated to have components, assemblies, or circuits removed and reconnected, provide the affected MCC compartments with new engraved nameplates worded as indicated and matching the existing, or modify the panelboard schedule to indicate the revised circuits. (Replace the panelboard schedule where the if modified.)

2. Pencil or magic marker markings directly on the MCC or panelboard breaker will not be accepted.

1.11 CONSTRUCTION SEQUENCING

A. Construction sequence shall be coordinated with other trades.

1. The CONTRACTOR shall carefully examine the WORK to be provided in, on, or adjacent to existing facilities.

2. Schedule the WORK, subject to OWNER's approval, to minimize required shutdown time.

B. Modifications

1. Perform modifications or alterations to existing electrical facilities as required to successfully install and integrate the proposed electrical equipment as indicated.

2. Perform modifications to existing equipment, panels, and cabinets in a professional manner.

3. Repair coatings to match existing.

4. The costs for modifications to existing electrical facilities that are required for a complete and operating system shall be included as part of the WORK.

C. Existing Utilities

1. Exercise extreme caution when digging trenches to not damage existing underground utilities.

2. The cost of repairs of damages caused during construction shall be included as a part of the WORK.

D. Field Verifications

1. Before performing any modifications to existing equipment, wiring, etc., the CONTRACTOR shall carefully examine and investigate existing conditions and shall notify the ENGINEER/OWNER upon discovery of any items that differ from the Contract Documents. The CONTRACTOR shall assure that existing conditions vary from available record documents, and shall include monies in the bid to make adjustments for reasonable variances and differing conditions.

2. The CONTRACTOR shall be responsible for identifying available existing circuit breakers in lighting panels for the intended use as required.

3. The CONTRACTOR shall be responsible for field verifying the available space in MCCs and panelboards to integrate new power circuit breakers.

4. The cost for the above verifications shall be included as part of the WORK.

E. Installation of Temporary Equipment

1. To facilitate the continuous operation of existing equipment, provide the temporary equipment as indicated.

2. Submit installation and connection details for review and acceptance by the ENGINEER.

3. Costs associated with these temporary installations shall be included as part of the WORK.

4. Temporary wiring and equipment shall remain the property of the

CONTRACTOR unless indicated otherwise.

## PART 2 – PRODUCTS

2.01 GENERAL

A. Provide equipment and materials that are new and are the products of experienced and reputable manufacturers in the industry.

B. Provide equipment and materials listed by UL and bearing the UL label, where UL requirements apply.

C. Provide similar items in the WORK as products of the same manufacturer.

D. Provide equipment and materials of industrial grade standard of construction.

E. On devices indicated to display dates, display the year as 4 digits.

F. Temperature Ratings of Equipment Terminations

1. Provide terminations and lugs rated for use with 75-degree C conductors.

2. Wire sizes in the Contract Documents are based on NEC ampacity tables using the 75-degree C ratings.

2.02 MOUNTING HARDWARE

A. Miscellaneous Hardware

1. Provide nuts, bolts, and washers constructed of 316 stainless steel.

2. Provide threaded rods for trapeze supports constructed from continuous threaded 316 stainless steel, 3/8-inch diameter minimum.

3. Struts

a. Strut Manufacturer, or Equal: Unistrut; B-Line

b. Construct struts for mounting of conduits and equipment of 316 stainless steel.

c. Where contact with concrete or dissimilar metals may cause galvanic corrosion, use suitable non-metallic insulators in order to prevent such corrosion.

4. End Caps

a. End Caps Manufacturer, or Equal: Unistrut, Model P2860

b. Provide plastic protective end caps for all exposed strut ends.

5. Anchors

a. Anchors shall be provided per equipment manufacturer requirements.

2.03 ELECTRICAL IDENTIFICATION

A. Nameplates

1. Provide nameplates in accordance with Section 260553, Identification for Electrical Systems.

2. Provide nameplates for each panel-mounted component.

**PART 3 – EXECUTION**

3.01 INSTALLATION

A. Incidentals

1. Provide materials and incidentals required for a complete and operable system, even if not required explicitly by the Contract Documents.

2. Typical incidentals are terminal lugs not furnished with vendor- supplied equipment, compression connectors for cables, splices, junction and terminal boxes, and control wiring required by vendor-furnished equipment to connect with other equipment indicated in the Contract Documents.

B. Field Control of Location and Arrangement

1. The Drawings diagrammatically indicate the desired location and arrangement of outlets, conduit runs, equipment, and other items.

2. Exact locations shall be determined by the CONTRACTOR in the field, based on the physical size and arrangement of equipment, finished elevations, and other obstructions.

3. Follow the locations on the Drawings, however, as closely as possible.

4. Conduits

    a. Where conduit development drawings or "home runs" are indicated, route the conduits in accordance with those requirements.

    b. Provide exposed or encased routings as indicated, except conceal conduit in finished areas unless indicated otherwise.

    c. Size conduits encased in a slab for conduit OD not to exceed 1/3 of the slab thickness, and lay out and space as to not impede concrete flow.

5. Placement

    a. Install conduit and equipment in such a manner as to avoid obstructions, to preserve headroom, and to keep openings and passageways clear.

    b. Locate luminaires, switches, convenience outlets, and similar items within finished rooms as indicated.

    c. Where exact locations are not indicated, such locations will be determined by the CONTRACTOR, subject to approval of the OWNER and ENGINEER.

    d. If equipment is installed without instruction and must be moved, the cost of moving shall be included as part of the WORK. It shall be moved without additional cost to the OWNER.

    e. Slightly adjust luminaire locations in order to avoid obstructions and to minimize shadows.

6. Circuits

a. Wherever conduits and wiring for lighting and receptacles are not indicated, it shall be the CONTRACTOR'S responsibility to provide lighting and receptacle-related conduits and wiring as required, based on the actual installed fixture layout and the circuit designations as indicated.

b. Provide No. 12 AWG minimum wiring, and 3/4-inch minimum conduits (exposed) and one-inch minimum conduits (encased).

c. Where circuits are combined in the same raceway, derate conductor ampacities in accordance with NEC requirements.

C. Workmanship

1. Install materials and equipment in strict accordance with the printed recommendations of the manufacturer, and using workers skilled in the WORK.

2. Coordinate installation in the field with other trades in order to avoid interferences.

D. Protection of Equipment and Materials

1. Fully protect materials and equipment against damage from any cause.

2. Cover materials and equipment, both in storage and during construction, in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, plaster, or paint.

3. Keep moving parts clean and dry.

4. Replace or refinish damaged materials or equipment, including faceplates of panels and switchboard sections, as part of the WORK.

E. Provide power wiring in conduit for the equipment in accordance with the requirements of Section 260519, Low-Voltage Electrical Power Conductors and Cables.

F. Provide control wiring operating at 120 volts and less as indicated in Section 260519, Low-Voltage Electrical Power Conductors and Cables.

G. Core Drilling

1. Perform core drilling as required for the installation of raceways through concrete walls and floors.

2. Base the locations of floor penetrations, as may be required, on field conditions.

3. Verify exact core drilling locations based on equipment actually furnished as well as exact field placement.

4. To the extent possible, identify the existence and locations of encased raceways and other piping in existing walls and floors with the OWNER prior to any core drilling activities.

5. Repair damage to encased conduits, wiring, and piping as part of the WORK.

H. Equipment Anchoring

1. Floor-supported, wall, or ceiling-hung equipment and conductors shall be anchored in place by methods that will meet seismic requirements in the area where the project is located.

2. Wall-mounted equipment on concrete walls that weigh more than 250 pounds or that are within 18-inches of the floor shall be provided with fabricated steel support pedestals.

3. If the supported equipment is a panel or cabinet enclosed within removable side plates, it shall match supported equipment in physical appearance and dimensions.

4. Equipment Supports: Unless otherwise indicated, equipment supports, anchors, and restrainers shall be adequately designed for static, dynamic, and seismic loads.

I. Equipment Identification

1. Provide nameplates in accordance with Section 260553, Identification for Electrical Systems.

2. In addition to nameplates, equip control devices with standard collar-type legend plates.

3. Identify control devices within enclosures as indicated and similar to the sub-paragraph above.

4. Provide suitable inscribed finish plates for toggle switches that control loads out of sight of switches and for multi-switch locations of more than 2 switches.

5. Use equipment names and tag numbers, where indicated, on nameplates.

6. Provide typewritten circuit directories for panelboards, that accurately reflect the outlets connected to each circuit.

7. Terminal Blocks

   a. Label termination points on terminal blocks by identifiers on the blocks.

   b. Provide identifiers that have been preprinted by the terminal manufacturer or custom-printed.

   c. Hand-lettered markers will not be accepted.

8. Tag distribution equipment, stand-alone disconnects, starters, and VFDs with appropriate arc-flash labels.

J. Cleaning

1. Before final acceptance, thoroughly clean the electrical WORK of cement, plaster, and other materials.

2. Remove temporary tags, markers, stickers, and the like.

3. Remove oil and grease spots with a non-flammable cleaning solvent, by carefully wiping and scraping cracks and corners.

4. Apply touch-up paint to scratches on panels and cabinets.

5. Vacuum-clean electrical cabinets and enclosures.

6. Clean luminaires inside and out.

7. Dispose cleaning debris and refuse off-Site.

3.02 FIELD TESTING

A. Testing shall conform to the requirements of Equipment and System Startup and Testing.

**END OF SECTION**

## SECTION 26 05 19

## LOW VOLTAGE ELECTRICAL CONDUCTORS AND CABLES

## PART 1 – GENERAL

1.01 SCOPE

A. The CONTRACTOR shall furnish and install, at the locations shown on the Contract Drawings, as specified or as directed, the wire, cable, complete with shop drawings and other appurtenances, and furnish all labor, supervision, materials, appurtenances, tools and ancillary services as required for a complete and operable installation in accordance with the requirements of the Contract Documents.

B. In general, this WORK shall include the furnishing and installation of the following:

1. All field wire and cable not provided by equipment vendor and otherwise required to make a complete and functional system.

2. Manufacturer-supplied wire and cables when provided with equipment.

C. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, maintenance, and spare wire and cable.

D. In the event that motors provided are larger horsepower than the motors indicated, raceways, conductors, starters, overload elements, and branch circuit protectors shall be revised as necessary to control and protect the increased motor horsepower. Revisions are part of the WORK of this Section.

1.02. RELATED SECTIONS

A. Section 26 05 05, General Provisions for Electrical Systems

B. Section 26 05 53, Identification for Electrical Systems

1.03 REFERENCES

A. This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section

and those of the listed documents, the requirements of this section shall prevail.

B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

1. NFPA 70 (NEC) - National Electrical Code

2. ASTM B3 - Soft or Annealed Copper Wire

3. ASTM B8 - Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

4. ASTM B33 - Tinned Soft or Annealed Copper Wire for Electrical Purposes

5. ICEA S-68-516 - Ethylene-Propylene-Rubber-Insulated Wire

6. UL 44 - Underwriters Laboratories-Thermoset-Insulated Wires and Cables

7. UL 83 - Thermoplastic-Insulated Wires and Cables

8. UL 1277 - Safety Electrical Power and Control Tray Cables with Optional Optical-Fiber Members

10. IEEE 48 - Institute of Electrical and Electronics Engineers

## 1.04 SUBMITTALS

A. The following submittals shall be provided.

1. General: CONTRACTOR submittals shall be in accordance with the Submittal Procedures and 26 05 05, General Provisions for Electrical Systems.

2. Shop Drawings: In addition to the requirement of Submittal Procedures, the CONTRACTOR shall furnish the following information with the Shop Draw-

ings.

a. Complete catalog cuts of all wire, cable and appurtenances marked where applicable to show proposed materials.

b. Documentation showing that proposed materials comply with the requirements of NEC, ASTM, ICEA and UL.

c. Documentation of the Manufacturer's qualifications.

1.05 SHIPMENT, PROTECTION AND STORAGE

A. Equipment shipment, protection and storage shall conform to the equipment manufacturer requirements.

**PART 2 – PRODUCTS**

2.01 GENERAL

A. All conductors, include grounding conductors, shall be stranded copper. Aluminum conductor wire and cable will not be permitted. Insulation shall bear UL label and the manufacturer's trademark, type, voltage, and conductor size. Conductor insulation shall have color to meet the requirements of this Section. Color coded tapes shall not be used. Conductors except flexible cords and cables, fixture wires, and conductors that form an integral part of equipment such as motors and controllers shall conform to the requirements of Article 310 of the National Electric Code, latest edition, for current carrying capacity. Flexible cords and cables shall conform to Article 400, and fixture wires shall conform to Article 402. Wiring shall have wire markers at each end.

2.02 LOW VOLTAGE WIRE AND CABLE

A. Power Wires

1. 600 volt class power and lighting wiring shall be as manufactured by Rome, Continental Wire and Cable, Southwire, Okonite, or approved equal.

2. All wire rated for 600 volts run in duct or conduit for all power wiring shall be Class B, bare annealed copper stranded per ASTM B8, Type XHHW-2 cross-linked polyethylene conforming to UL 44, Standard for Thermoset-Insulated Wires and Cables, 90 degrees C, dry and wet.

3. No wire smaller than single, stranded #12 AWG shall be used for power loads.

4. Conductors for feeders as defined in Article 100 of the NEC shall be sized to prevent a voltage drop exceeding 3 percent at the farthest outlet of power, heating and lighting loads, or combinations of such loads, and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5 percent.

B. Control Wires

1. Control wire run in duct or conduit shall be of the same type as power wires as specified in 2.2A above.

2. No. 14 AWG shall be used for control wiring.

C. Control wire within panels and cabinets.

1. Control wires within panels and cabinets shall be MTW dual rated, UL approved, rated for 90 degrees C at dry locations as manufactured by Southwire, Okonite, or approved equal.

D. Float Switch Cables

1. Float switch cables for wiring between float switches and pump control system shall be provided with float switches.

2. Cables construction shall be suitable for the environment in which they are installed.

3. Cables shall be long enough to reach the pump controllers without splicing.

E. Pump Cables

1. Pump cables for wiring between submersible pumps and motor controllers shall be provided with submersible pumps.

2. Cables construction shall be suitable for the environment in which they are installed.

3. Cables shall be long enough to reach the motor controllers without splicing.

4. Pump cables shall have integral motor winding overheat and pump seal leak sensor cables.

2.03 CABLE TERMINATIONS

A. Compression connectors shall be Burndy "Hi Lug", Thomas & Betts "Shure Stake", or approved equal. Threaded connectors shall be split bolt type of high strength copper alloy. Pressure type, twist-on connectors (wire nuts) will not be acceptable.

1. For wire sizes up to #6 AWG, use compression connectors.

2. For sizes #4 AWG and larger, use either compression connectors or split bolt type threaded connectors with silver-plated contact faces.

3. For sizes #250 kcmil and larger, use connectors with at least 2 cable clamping elements or compression indents and a provision for at least 2 bolts for joining to apparatus terminal.

B. Pre-insulated fork tongue lugs shall be "Thomas & Betts" RC Series, Burndy, or approved equal.

C. General purpose insulating tape shall be Scotch No. 33, Plymouth "Slip-knot", or approved equal. High temperature tape shall be polyvinyl as manufactured by Plymouth, 3M, or approved equal.

2.04 FACTORY TESTING

A. Cable Assembly and Testing: Cable assembly and testing shall comply with applicable requirements ICEA Publication No. S-68-516 and other relevant ICEA Publications. Factory test results shall be submitted in accordance with Submittal Procedures, prior to shipment of cable.

**PART 3 – EXECUTION**

3.01 INSTALLATION

A. General

1. The CONTRACTOR shall provide, install and terminate all power and control conductors except where specified in other sections.

2. All wires, cables and conduit wire fills shall conform to the regulations of the

National Electric Code, latest edition, for current carrying capacity. All wiring shall have wire markers at each end.

3. Unless otherwise specified or shown, install all wire and cable in conduit. Conductors shall not be pulled into raceway until raceway has been cleared of moisture and debris.

4. Pulling tensions on raceway cables shall be within the limits recommended by the cable manufacturer. Wire pulling lubricant, where needed, shall be UL approved.

5. Power and Control wires shall not be run in the same raceway except where it is specifically shown on the Contract Drawings.

6. Wire in panels, cabinets, and wireways shall be neatly grouped using nylon tie straps, and shall be fanned out to terminals.

B. Splices and Terminations

1. All wire taps and splices shall be properly taped and insulated as to their respective classes and shall meet the requirements of A.S.T.M.

2. Stranded conductors shall be terminated directly on equipment box lugs making sure that all conductor strands are confined within lug. Use forked-tongue lugs where equipment box lugs have not been provided.

3. Excess control and instrumentation wires shall be long enough to terminate at any terminal block in the enclosure, be properly taped, be identified as spare with origin, and be neatly coiled.

4. In general, there shall be no cable splices in underground manholes/handholes/pull boxes.

5. In general, there shall be no cable splices except as specifically permitted or indicated. Where required, splice control wiring in junction box using terminal blocks. Splices in conduits or condulets are not permitted. Power cable splices shall be submersible.

C. Control Wire and Cable

1. Control conductors shall be terminated only at the locations shown and only on terminal strips or terminal lugs of vendor furnished equipment. There shall

be no splicing of control conductors.

2. In control panels/stations, all control wire and spare wire shall be terminated to terminal strips.

3. In junction boxes connecting three or more conduits, all control wiring that is distributed to three or more of the conduits shall be terminated to terminal strips. All control wiring that is included in two conduits only (pulled through only), shall not be terminated. All spare wiring shall be terminated to terminal strips.

4. In junction boxes serving as an interface to the factory wiring of equipment or field devices, all control wiring shall be terminated to terminal strips. Examples include, but are not limited to, leads from the equipment or device that are connected internally (no accessible terminal strip) or field installed cable assemblies that interface to the equipment or device (plug in connectors specific to the equipment). All spare wiring shall be terminated to terminal strips.

5. The CONTRACTOR shall provide as a minimum the number of control wires listed in the conduit schedule or as indicated in the Contract Documents. Excess wires shall be treated as spares.

D. Power Wire and Cable

1. 120/208/277-volt receptacle and lighting circuit conductors may be spliced in suitable fittings at locations determined by the CONTRACTOR.

2. Splices to motor leads in motor terminal boxes shall be wrapped with mastic material to form a mold and then shall be taped with a minimum of two layers of varnished cambric tape overtaped with a minimum of two layers of high temperature tape.

E. Cable Identification

1. General: The completed electrical installation shall be provided with adequate identification to facilitate proper control of circuits and equipment and to reduce maintenance effort, all as specified below.

2. Cable: The CONTRACTOR shall label each control and instrumentation wire with the unique identification numbers shown on the Contract Drawings and as specified in Section 26 05 53, Identification for Electrical Systems. If an identification number/method is not specifically shown, the CONTRACTOR

shall assign a unique identification number with the same convention and in sequence with conductors of related equipment. Said numbers shall be assigned to all conductors having common terminals and shall be shown on all "record" drawings.

a. Terminate all field wiring at copper barrier type terminal blocks with clear covers for terminals. For internal panel wiring barrier type terminal blocks are acceptable for power distribution only, otherwise DIN rail style terminal blocks shall be used. All DIN style terminal blocks, including those for plug-in relays and other devices, shall have finger-safe terminals. Barrier type terminal blocks shall have clear covers over terminals.

b. No more than two wires shall be terminated at any single screw. Provide jumpers as required to join adjacent terminal blocks for additional wiring connection points.

c. All terminals and terminal strips and posts shall be numbered with mylar applique number labels.

d. Provide a separate terminal block for landing each analog signal cable shield.

e. Provide separate terminal strips for DC signal and AC power wiring.

f. Provide spare terminal blocks equal in number to 20 percent of the terminals used for each type of wiring (i.e., DC signal and AC power) with a minimum of 5. In addition provide space to accommodate 25 percent more terminals in the future.

g. All spare cable shall be terminated on terminal strips and shall be identified with a unique number as well as with destination.

3. Color Coding:

a. Conductor insulation shall have color to meet the following requirements. Color coded tapes shall not be used. Where colored insulation is not available, submit a request to the ENGINEER.

b. All 120/208-volt system feeder cables and branch circuit conductors shall be color coded as follows: Phase A-black, Phase B-red, Phase

C-blue, and Neutral-white. All 120/240-volt system feeder cables and branch circuit conductors shall be color coded as follows: Phase A-black, Phase B-red, and Neutral-white.

c. General purpose AC control cables shall be red. General purpose DC control cables shall be blue. AC Neutral control cables shall be white.

d. All wiring not de-energized by the panel disconnect or circuit breaker shall be yellow wire.

e. For all panels containing wiring not de-energized by the panel disconnect or circuit breaker, provide a warning nameplate on the front of the panel stating "WARNING YELLOW WIRING NOT DE-ENERGIZED BY PANEL DISCONNECT." The nameplate shall be amber with black, 1/4 inch high letter engravings and shall be attached to the panel face with stainless steel screws.

3.02 FIELD TESTING

A. Testing shall conform to the requirements of Equipment and System Startup and Testing and those specified in this Section.

B. All field testing shall be witnessed by the OWNER representative and signed off. Signed test reports by CONTRACTOR and OWNER representative shall be included with test reports for ENGINEER approval. The following field tests shall be the minimum requirements:

1. All new power cables rated at 600 volts shall be tested for insulation resistance between phases and from each phase to a ground using a megohmeter. The tester shall be supplied by the CONTRACTOR. Battery driven testers will be acceptable.

2. All field testing mentioned above shall be done after cables are installed in the raceways.

3. Field tests shall be performed by certified test organization acceptable to the cable manufacturer. Test results shall be submitted to the ENGINEER for review and acceptance.

4. New cables failing in the said tests shall be replaced with a new cable or repaired. Such kind of repair methods shall be as recommended by the cable manufacturer and shall be performed by persons certified by the industry.

Where existing cables fail, the CONTRACTOR shall notify the ENGINEER immediately for corrective action.

5. All new and existing low voltage and medium voltage power cables shall be tested for insulation resistance between phases and from each phase to a ground using a megohmeter. The tester shall be supplied by the CONTRACTOR. Battery driven testers will be acceptable.

6. All field-testing mentioned above shall be done after cables are installed in the raceways. Partial discharge testing shall be performed after cables are energized.

7. Field tests shall be performed by certified test organization acceptable to the cable manufacturer. Test results shall be submitted to the ENGINEER for its review and acceptance.

8. New cables failing in the said tests shall be replaced with a new cable or repaired. Such kind of repair methods shall be as recommended by the cable manufacturer and shall be performed by persons certified by the industry.

B. Continuity Test: All control and instrumentation cables shall be tested for continuity, polarity, undesirable ground, and origination. Such tests shall be performed after installation and prior to placing all cables in service. Under no circumstances shall Megger tests be made to control wiring connected to control panels or instruments.

**END OF SECTION**

# SECTION 26 05 26

# GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

## PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope

1. Provide the electrical grounding system, complete and operable, as indicated in accordance with the Contract Documents.

2. The requirements of Section 26 05 05, General Provisions for Electrical Systems apply to this Section.

3. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts, and manufacturer's services.

1.02 RELATED SECTIONS

A. Section 26 05 05, General Provisions for Electrical Systems

1.03 REFERENCES

A. This Section contains references to the following documents. They are a part of this Section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this Section as if referenced directly. In the event of conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.

B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

1. UL 467 - Standard for Safety Grounding and Bonding Equipment

2. NEC - National Electrical Code, Article 250

3. IEEE 81 - Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

1.04 SUBMITTALS

A. The following submittals shall be provided in accordance with Submittal Procedures:

1. If deviations from the specifications are requested by the CONTRACTOR, each deviation shall be clearly noted and a detailed written explanation of the reasons for requesting the deviation. The ENGINEER shall be the final authority for determining acceptability of requested deviations.

2. Furnish submittals in accordance with the requirements of Submittal Procedures and Section 26 05 05, General Provisions for Electrical Systems.

3. Shop Drawings: Submit manufacturer's product information for connections, clamps, and grounding system components, showing compliance with the requirements of this Section.

**PART 2 – PRODUCTS**

2.01 GENERAL

A. Components of the grounding electrode system shall be manufactured in accordance with UL 467 - Standard for Safety Grounding and Bonding Equipment, and shall conform to the applicable requirements of National Electrical Code Article 250 and local codes.

2.02 GROUNDING SYSTEM

A. Grounding Materials Manufacturer, or Equal

1. Copperweld

2. Thermoweld

3. FCI-Burndy

B. Grounding loop conductors shall be bare annealed copper conductors.

C. Conductors shall be No. 4/0 unless indicated otherwise.

D. Ground Rods

1. Unless indicated otherwise, provide ground rods minimum of 3/4 inch in diameter, 10 feet long, and with a uniform covering of electrolytic copper metallically bonded to a rigid steel core.

2. Provide corrosion-resistant copper-to-steel bond.

3. The rods shall conform to UL 467.

4. The rods shall be of the sectional type, joined by threaded copper alloy couplings.

E. Make buried, concrete-encased, and any other non-accessible cable-to-cable and cable-to-ground rod connections using exothermic welds by Cadweld, Thermoweld, or equal.

F. Exposed Connectors

1. The connectors shall be FCI-Burndy, O.Z. Gedney, or equal.

2. Exposed grounding connectors shall be of the compression type (connector-to-cable), constructed of high-copper alloy, and manufactured specifically for the particular grounding application.

G. Use grounding clamps to bond each separately-derived system to the grounding electrode conductors.

H. Equipment Grounding Conductors

1. The conductors shall be the same type and insulation as the load circuit conductors.

2. The minimum size shall be as outlined in Table 250.122 of the National Electrical Code, unless indicated otherwise.

3. Metallic conduit systems shall have an equipment grounding wires as well as

being equipment grounding conductors themselves.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

A. Grounding

1. Provide a separate grounding conductor, securely grounded in each raceway independent of raceway material.

2. Provide a separate grounding conductor for each motor and connect at motor box.

3. Do not use bolts for securing the motor box to the frame or the cover for grounding connectors.

4. Sizes shall be as indicated on the Conduit Schedule and in accordance with NEC Article 250.

5. Route the conductors inside the raceway.

6. Provide a grounding-type bushing for secondary feeder conduits.

7. Individually bond the raceway to the ground bus in the secondary section.

8. Provide a green insulated wire as grounding jumper from the ground screw to a box grounding screw, and, for grounding type devices, to the equipment grounding conductor.

9. Provide a full size separate grounding conductor in each individual raceway for parallel feeders.

10. Interconnect the secondary neutral bus to the ground bus only at the service entrance point.

11. Provide the duct bank ground system as indicated, including trenching, splices, ground rods, and connections to equipment and structures.

12. Measure ground impedance in accordance with IEEE STD 81 after installation but before connecting the electrode to the remaining grounding system.

13. Low Voltage Grounded System (600V or less)

    a. A low-voltage grounded system is defined as a system where the local power supply is a transformer, with the transformer secondary grounded.

    b. Grounding system connections for a premises-wired system supplied by a grounded AC service shall be provided with a grounding electrode connector connected to the grounded service conductor at each service, in accordance with the NEC.

    c. The grounded circuit conductor shall not be used for grounding non-current-carrying parts of equipment, raceways, and other enclosures except where specifically listed and permitted by the NEC.

14. Embedded Ground Connections

    a. Underground and grounding connections embedded in concrete shall be UL-listed ground grid connectors.

    b. The connection shall be made in accordance with the manufacturer's instructions.

    c. Do not conceal or cover ground connections until the ENGINEER or an authorized representative has established that every grounding connection conforms to the requirements of the Contract Documents and has given the CONTRACTOR written confirmation.

15. Duct Bank Ground

    a. Embed a grounding conductor in every duct bank as indicated.

16. Ground Rods

    a. Provide ground rods at the indicated locations.

    b. A single electrode that does not have resistance-to-ground of 5 ohms or less shall be augmented by additional electrodes to obtain this value.

    c. Take the resistance-to-ground measurement during dry weather, a minimum of 48 hours after a rainfall.

d. Rods forming an individual ground array shall be equal in length.

17. Shield Grounding

a. Shielded instrumentation cable shall have its shield grounded at one end only unless the Shop Drawings indicate that the shield will be grounded at both ends.

b. The grounding point shall be at the control panel or at the receiving end of the signal carried by the cable.

c. The termination of the shield drain wire shall be on its own terminal screw.

d. Jumper together the terminal screws, using manufactured terminal block jumpers or a No. 14 green insulated conductor.

e. Connect the ground bus via a green No. 12 conductor to the main ground bus for the panel.

3.02 FIELD TESTING

A. Testing shall conform to the requirements of Equipment and System Startup and Testing, and those specified in this Section.

B. Perform the following field quality-control testing:

1. After installing grounding system but before permanent electrical circuitry has been energized, test for compliance with requirements.

2. Test completed grounding system at each location where a maximum ground-resistance level is indicated and at service disconnect enclosure grounding terminal. Measure ground resistance not less than two full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests, by the fall-of-potential method according to IEEE 81.

3. Provide drawings locating each ground rod, ground rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and

their depth at each location and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results. Nominal maximum values are as follows:

a. Equipment Rated 500 kVA and Less: 10 ohms.

b. Manhole Grounds: 10 ohms.

**END OF SECTION**

# SECTION 26 05 33

# ELECTRICAL RACEWAY SYSTEMS

## PART 1 – GENERAL

1.01 SCOPE

A. The CONTRACTOR shall furnish and install, at the locations shown on the Contract Drawings, as specified or as directed, the electrical raceway systems, complete with shop drawings, operation and maintenance manuals, and other appurtenances, and furnish all labor, supervision, materials, appurtenances, tools and ancillary services as required for a complete and operable installation in accordance with the requirements of the Contract Documents.

B. In general this work shall include the furnishing and installation of the following:

C. Electrical Raceway Systems

D. The requirements of the drawings and General Conditions of the Contract, including Special Conditions and Division 01 Specification sections, apply to the work of this Section.

E. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts and manufacturer's services.

1.02 RELATED SECTIONS

A. Section 26 05 05 – General Provisions for Electrical Systems

B. Section 26 05 53 – Identification for Electrical Systems

1.03 REFERENCES

A. This Section contains references to the following documents. They are a part of this Section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this Section as if referenced directly. In the event of conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.

B. Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

1. NEC (NFPA 70) – National Electrical Code

2. NFPA 70E – Standard for Electrical Safety in the Workplace

3. NETA – International Electrical Testing Association

4. NEMA 250 – Enclosure for Electrical Equipment (1000 Volts Maximum)

C. Electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL) or an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.

D. Installation of electrical equipment and materials shall comply with OSHA Safety and Health Standards (29 CFR 1910 and 29 CFR 1926, as applicable), state building standards, and applicable local codes and regulations.

E. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.

1.04 SUBMITTALS

A. General: Contractor submittals shall be in accordance with the requirements of Section 01 30 00 – Administrative Requirements and 26 05 05 – General Provisions for Electrical Systems

B. Shop Drawings: In addition to the requirement of Section 01 30 00 – Administrative Requirements, the CONTRACTOR shall furnish the following information with the Shop Drawings.

1. Complete catalog cuts of all raceways, fittings, boxes, supports, and mounting hardware, marked where applicable to show proposed materials and finishes.

2. As-Built Drawings

a. Dimensioned layout drawings of all raceway routings, including elevations.

b. Prepare as-built drawings of encased concealed and exposed raceways, raceways, junction boxes, pull boxes, and electrical and instrumentation equipment.

c. Furnish the drawings to the ENGINEER in accordance with the requirements of Section 01 30 00 – Administrative Requirements.

## PART 2 – PRODUCTS

2.01 GENERAL

A. Pull and junction boxes, fittings, and other indicated enclosures which are dedicated to the raceway system shall comply with the requirements of this Section.

B. Gaskets shall be neoprene. Cork gaskets will not be permitted.

C. All boxes and fittings shall utilize 316 stainless steel hardware.

2.02 CONDUITS

A. Rigid Galvanized Steel (RGS) Conduits:

1. Rigid steel conduits (RGS) shall be manufactured from mild steel, and hot dip galvanized.

2. Rigid steel conduit (RGS) shall be manufactured in accordance with UL-6.

3. Manufacturers shall be Allied Tube & Conduit, or approved equal.

B. Rigid Non-Metallic (PVC) Conduit

1. Provide rigid non-metallic conduit manufactured from Schedule 40 PVC and sunlight resistant.

2. Provide rigid non-metallic conduit manufactured in accordance with NEMA TC-2 - Electrical Plastic Tubing and Conduit, and UL-651 - Standard for Rigid Non-metallic Conduit.

3. Manufacturer, or Equal

a. Carlon

b. Cantex

C. Liquid-Tight Flexible Conduit

1. Provide liquid-tight flexible conduit constructed of a flexible galvanized metal core with a sunlight-resistant thermoplastic outer jacket. The flexible conduit shall be complete with integral equipment grounding conductor.

2. Provide liquid-tight flexible conduit manufactured in accordance with the requirements of UL-360 - Steel Conduits, Liquid-Tight Flexible.

3. Manufacturer, or Equal

a. Anaconda, Sealtite

b. Electriflex, Liquatite

D. Electrical Metallic Tubing (EMT) or Intermediate (IMC) conduits will not be accepted.

2.03 FITTINGS AND BOXES

A. General:

1. All cast fittings for use with metallic conduits shall be of the threaded type (five full threads).

2. All fittings and boxes shall have neoprene gaskets and non-magnetic type 316 stainless steel screws. All covers shall be attached by means of holes tapped into the body of the fitting. Covers for fittings attached by means of clips or clamps are not acceptable.

3. Junction and pull boxes shall be made of carbon steel, and painted, 14-gauge thickness minimum. The boxes shall be NEMA 12 rated for indoor use and NEMA-4/3R rated for outdoor exposed applications.

4. In all locations, top entry conduit shall be terminated in rain-tight hubs as

manufactured by Myers, O-Z/Gedney, or approved equal. In all locations, for side or bottom entry conduit weatherproof double sealed locknuts (O-ring style) and grounding bushings shall be used. Bushings shall not be used in place of locknuts.

5. In areas subject to accidental submergence the boxes shall be NEMA 6/6P rated.

6. Boxes where conduits enter a building below grade shall have ½ inch drain hole with a petcock type fitting attached for ½ inch tubing drain line. Provide ½ inch drain line and fittings of polyethylene tubing to nearest drain trench or sump.

7. Boxes larger than 24" x 24" to have hinged doors. All clamps shall be 316 stainless steel with 316 stainless steel screws.

B. Liquid-Tight Flexible Conduit Fittings

1. Fittings for liquid-tight conduits shall be steel threaded type and manufactured by Appleton, Efcor, Thomas and Betts, or approved equal. Screw-clamp type connections are not acceptable.

2.04 CONDUIT LABELING SYSTEM

A. All conduits shall be labeled using labels as specified in Section 26 05 53 – Electrical Identification.

2.05 PULL AND JUNCTION BOX LABELING SYSTEM

A. All pull and junction boxes shall be labeled as specified in Section 26 05 53 – Electrical Identification.

**PART 3 – EXECUTION**

3.01 GENERAL

A. Raceways shall be installed between equipment as shown or otherwise required to make a complete and functional electrical and control system. Raceway systems shall be electrically and mechanically complete before conductors are installed. Bends and offsets shall be smooth and symmetrical and shall be accomplished with tools designed for this purpose. Factory elbows shall be utilized wherever possible.

B. Where raceway routings are designated on plan views the CONTRACTOR shall follow those routings to the extent possible unless there are field conflicts.

C. Routings shall be adjusted to avoid obstructions. Coordinate with all other trades prior to installation of raceways. Lack of such coordination shall not be an excuse for extra compensation, and removal and re-installation to resolve conflicts shall be at no extra cost to the OWNER.

D. Exposed raceways shall be installed parallel or perpendicular to structural beams.

E. Expansion Fittings

1. Install expansion fittings with external bonding jumpers wherever exposed raceways cross building expansion joints.

2. Install expansion/deflection fittings where conduit movement is expected in more than one dimension, and where conduits transition out of structures in locations where differential settlement may occur.

3. Encased Expansion Fittings

a. Install encased expansion fittings wherever encased conduits cross building expansion joints.

b. Deflection type fittings shall not be required for encased conduits crossing an expansion joint within a single structure.

4. Provide expansion and expansion/deflection fittings constructed of the same material as the raceway to which they are installed.

5. Fittings shall be water-tight and corrosion resistant.

F. All exposed raceways shall be installed at least one-half (1/2) inch from walls or ceilings except that at locations above finished grade where damp conditions do not prevail, exposed raceways shall be installed one-quarter (1/4) inch minimum from the face of walls or ceilings by the use of clamp backs or struts. All raceway shall be installed 12” (min.) from hot surfaces such as incinerators, steam pipes, etc.

G. Wherever contact with concrete or dissimilar metals can produce galvanic corrosion of equipment, suitable insulating means such as plastic/nylon spacers shall be provided to prevent such corrosion.

1. Where steel conduit comes in contact with aluminum conduit provide an appropriate zinc based anti-seize compound.

H. For Non-hazardous areas, where double locknuts are used at equipment, junction and pull boxes and other lesser equipment, the outside locknut shall have a sealing "O" ring. In Non-hazardous areas where conduits connect to power panels, or control panels, Myers Hubs, or equal shall be used.

I. Conduit supports shall meet the seismic requirements outlined in Section 26 05 00 – Common Work Results for Electrical Work.

3.02 CONDUITS

A. Unless indicated otherwise, all exposed conduits shall be rigid galvanized steel conduits.

B. Exposed conduits shall be 3/4" minimum trade size. Encased conduits shall be one-inch minimum trade size. Supports shall be installed at distances required by the N.E.C.

C. All threads shall be coated with a conductive lubricant before assembly.

D. Joints shall be tight, thoroughly grounded, secure, and free of obstructions in the pipe. All conduit shall be adequately reamed to prevent damage to the wires and cables inside. Strap wrenches and vises shall be used to install conduit to prevent wrench marks on conduit. Conduit with wrench marks shall be replaced at no additional cost to the OWNER.

E. Wherever possible, conduit runs shall slope to drain at one or both ends of run. Wherever conduit enters substructures below grade, the conduit shall be sloped to drain water away from the structure. Extreme care shall be taken to avoid pockets or depressions in conduit.

F. Connections to lay-in type grid lighting fixtures shall be made using flexible metal conduit not exceeding 4 feet in length. Connections to motors and other equipment subject to vibration shall be made with liquid-tight flexible conduits not exceeding 3 feet in length. Equipment subject to vibration which is normally provided with wiring leads shall be provided with a cast junction box for the make-up of connections.

G. Galvanized steel strut shall be utilized for conduit hangers and for spacing conduit off of walls and or ceilings. Strut thickness shall be sized for the application intended but shall in all cases have a minimum thickness of 0.105 inch and shall be as manufac-

tured by Uni-Strut, B-Line, or approved equal.

H. Conduits shall be held in place with appropriate galvanized steel fittings.

I. No conduits or raceways shall be fastened to the sides of hanger rods.

J. Install nylon pull wire in each empty conduit and cap conduits not terminating in boxes with permanent fittings designed for the purpose. Tag pull-wire at each end indicating destination location. Tag conduit at both ends indicating final destination.

K. Leave no open conduit holes in boxes.

L. Outlet boxes/bodies to have external mounting provisions. Back drilling will not be permitted.

M. Securely fasten boxes to walls or other structural surfaces on which they are mounted. Provide independent aluminum supports where no walls or other structural surface exists.

N. Install pull boxes in runs containing more than three 90 degree bends, runs exceeding 200-feet and where required to conform with the National Electrical Code.

O. Provide terminal blocks in junction boxes where cable terminations or splices are required.

P. Running threads shall not be used in lieu of conduit nipples nor shall excessive thread be used on any conduit. The ends of conduit shall be cut square, reamed and threaded with straight threads.

Q. Separate raceway systems shall be provided for all power, control, signal, and intrinsically safe conductors. Motor power and control conductors may be combined in common raceways only when so shown on the Drawings.

R. Install one to three-foot-long flexible small liquid-tight conduit with proper fittings and wrench tight connections to all motors, and to other equipment that has motion or vibration. Provide bonding jumpers where required.

S. Arrange conduit to maintain headroom and present a neat appearance.

T. Bends and offsets shall be avoided where possible but, when necessary, shall be made without flattening or kinking or shall be factory-performed bends. Welding, brazing or otherwise heating of conduit is not acceptable.

U. All supports shall be braced in an approved manner to prevent swaying and to provide rigidity. The design of the bracing and supports shall be as approved by the ENGINEER.

V. Conduit runs shall be supported on existing hangers only where approved by the ENGINEER or shall be supported on approved hangers suspended from either existing concrete insert where available or by means of approved anchors.

W. Cut conduit square using a saw or pipecutter; de-burr cut ends.

X. Install all fittings such as locknuts, bushings, clamps, hangers, reducers, unions, water and gas seals, drains, breathers, cap plugs, couplings, nipples and all other fittings that are required for the installations.

Y. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fittings at conduit low point.

Z. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture. Immediately after pulling any wire, box and enclosure covers shall be installed. Empty conduits that terminate flush with floors or walls shall be plugged with flush couplings and brass plugs.

AA. Install ground bushings on conduits that terminate at equipment and connect conductors to the bushings and equipment enclosure or ground bus.

BB. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.

CC. Wooden plugs, plastic inserts or gunpower-driven inserts are not acceptable as a base to secure conduit supports.

DD. Welding conduits and fittings to structural steel are not permitted.

EE. Burning or cutting holes in any structural steel is not permitted.

FF. Where conduit shall be supported from structural steel, properly drilled holes shall be provided for bolts, washers, nuts and clamps. Obtain approval of the ENGINEER prior to drilling holes in structural steel.

GG. Conduit passing through walls or floors shall have plastic sleeves. Core drilling shall be performed in accordance with section 26 05 05 – General Provisions for Electrical Systems. All floor and wall penetrations shall be fire-stopped to maintain fire ratings.

Furnish and install as required and in accordance with the manufacturer's recommendations. Conduits passing through a slab, wall, or beam shall not significantly impair the strength of construction.

HH. Installation of conduit though a core-drilled hole in an exterior wall below-grade shall utilize a water-tight sealing device.

II. Where conduit is stubbed up from concrete encasement, provide a factory made, long radius FRP elbow. The conduit shall emerge from the concrete in a direction perpendicular to the surface whenever possible. Do not encase conduit in the bottom floor slab below grade.

JJ. Concrete cover for conduit and fittings shall not be less 3 inches.

KK. Place the conduit such that cutting, bending, or displacing reinforcement from its proper location will not be required.

LL. Provide separation for different types of conduits to avoid electro-magnetic interferences.

MM. Conduits embedded within a slab, wall, or beam (other than those merely passing through) shall meet the following requirements:

1. Conduits with their fittings embedded within a column shall not displace greater than 4 percent of the gross area of cross section;

2. Conduits shall not be larger in outside dimension than 1/3 the overall thickness of the slab, wall, or beam in which it is embedded; and,

3. Conduits shall not be spaced closer than 3 outside diameters on centers.

## 3.03 CONDUIT LABELING SYSTEM

A. All conduit shall be provided with conduit labels unless otherwise specified. See Section 26 05 53 – Electrical Identification for additional requirements.

B. Conduit labels for conduits shall be installed at the following locations:

1. Where conduit enters or exits boxes, cabinets, panels or enclosures, except pull boxes and conduit bodies used for pull boxes.

2. At intervals of not more than 50 feet along the length of the conduit.

C. Conduit labels shall be oriented so as to be readable from floor level.

3.04 PULL AND JUNCTION BOX LABELING SYSTEM

A. Pull and Junction Box Numbering: Pull and junction box numbers shall be as shown on the Contract Drawings. The CONTRACTOR shall assign pull and junction box numbers where not indicated.

**END OF SECTION**

# SECTION 26 05 43

# UNDERGROUND RACEWAY SYSTEMS

## PART 1 – GENERAL

1.01 SCOPE

A. Provide underground raceway systems, complete and in place, as indicated in accordance with the Contract Documents.

B. Handholes, and fittings for the underground raceway system shall comply with the requirements of this Section.

1.02 RELATED SECTIONS

A. Section 26 05 05 – General Provisions for Electrical Systems

B. Section 26 05 26 – Grounding and Bonding for Electrical Systems

1.04 SUBMITTALS

A. Shop Drawings

1. Submit complete catalog cuts of all raceways, fittings, handholes and appurtenances, marked where applicable in order to show proposed materials and finishes.

B. As-Built Documentation

1. Prepare and submit scaled, as-built drawings of duct banks.

2. Show routings, burial depths, and handhole locations and sizes.

3. Provide photos of new handholes.

## PART 2 – PRODUCTS

2.01 DUCTBANKS

A. Provide underground ducts constructed of Schedule 40 PVC.

1. Provide #12 AWG pull wire in all empty/spare ducts.

B. Encase ducts in red-dyed concrete with steel reinforcing bars.

C. Provide concrete with a 4,000-psi compressive strength.

D. Colorant

1. The concrete shall be dyed red throughout the concrete bank; surface treatment will not be accepted.

2. Provide colorant consisting of an integral red-oxide coloring pigment in the proportion of 8 pounds per cubic yard of concrete.

3. The costs, if any, of cleaning coloring pigment from the concrete delivery equipment and other related cleanings shall be considered as part of the WORK.

E. Identification Tape

1. Provide continuous lengths of underground warning tapes located 8 inches above and parallel to the ductbanks.

2. Provide tape consisting of 6-inch wide polyethylene film, imprinted with "CAUTION - ELECTRIC BELOW."

3. Provide tape that contains a non-ferrous metal foil conductor sandwiched in the tape for detection purposes.

4. Tape Manufacturer, or Equal: Brady

## PART 3 – EXECUTION

3.01 GENERAL

A. Raceway systems shall be electrically and mechanically complete before conductors are installed.

B. Provide bends and offsets that are smooth and symmetrical, and fabricated with tools designed for this purpose.

C. Use long radius factory elbows wherever possible.

D. To the extent possible, follow the raceway routings as indicated on the Drawings.

E. Adjust the indicated routings as necessary in order to avoid obstructions.

F. Coordination

1. Coordinate with other trades and existing field conditions prior to installation of raceways. The lack of coordination shall not be justification for extra compensation. Provide any adjustments, removal and re-installation to resolve conflicts as part of the WORK.

3.02 DUCTBANKS

A. Install ductbanks in accordance with the following criteria and as shown on the drawings:

1. Assemble the duct using high-impact, non-metallic spacers and saddles in order to provide conduits with vertical and horizontal separation.

2. Set the plastic spacers every 5 feet.

3. Anchor the duct array every 5 feet in order to prevent movement during the placement of concrete.

4. Lay the duct on a grade line of at least 3 inches per 100 feet, sloping towards pullboxes or manholes.

5. Install the duct and adjust the handhole and manhole depths such that the top of the concrete envelope is a minimum of 18 inches below grade and a minimum of 24 inches below roadways.

6. Accomplish changes in direction of the duct envelope by more than 10 degrees horizontally or vertically by using bends with a minimum radius 24 times the duct diameter.

7. Stagger duct couplings a minimum of 6 inches.

8. Provide select backfill or sand for the bottom of the trench. Depth shall be 12” compacted, or as indicated.

9. Cleaning

a. Clean each bore of the completed ductbank by drawing through it a standard flexible mandrel, one foot long and 1/4 inch smaller than the nominal size of the duct.

b. After passing the mandrel, draw through a wire brush and swab.

10. For spare raceways that are not indicated to contain conductors, provide a 1/8-inch polypropylene pull cord installed throughout the entire length of the raceway.

B. Grout duct entrances smooth, and terminate ducts with flush end bells.

C. Provide watertight ductbank penetrations through walls of manholes, handholes, and building walls below grade.

D. Terminate concrete-encased ductbanks at building foundations.

E. When duct enters the building on a concrete slab on grade, do not encase the duct but transition to FRP conduits on stub-ups.

F. Sealing

1. Where an underground conduit enters a structure through a concrete roof or a membrane-waterproofed wall or floor, provide a water-tight sealing device.

**END OF SECTION**

# SECTION 26 05 53

# IDENTIFICATION FOR ELECTRICAL SYSTEMS

## PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope

1. CONTRACTOR shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install wire labels, wire color coding, terminal block labels, conduit identification, legend plates, nameplates and other identification for electrical apparatus.

B. Coordination

1. Review installation procedures under other Sections and coordinate the installation of items that must be installed with wire labels, wire color coding, terminal block labels, conduit identification, legend plates, nameplates and other identification for electrical apparatus.

1.02 RELATED SECTIONS

A. Section 26 05 05 - General Provisions for Electrical Systems

1.03 SUBMITTALS

A. Submit product data for name plates, wire markers, conduit labels including all electrical identification devices not specifically mentioned but otherwise required for clearly identifying all electrical work under the project.

B. Product Data:

1. Manufacturer’s cut sheet, specifications, dimensions and technical data for all products proposed to be furnished under this Section.

2. Any deviation shall be explicitly noted.

C. Samples:

1. Nameplates: Samples of nameplates shall be submitted and shall include both

applied and unapplied wire and cable label samples. These samples shall be used as quality standards for the wire and cable labeling required by this Section. These samples shall be of material specified in this Section and shall include wire and cable designators meeting the requirements of this Section.

## PART 2 – PRODUCTS

### 2.01 ENGRAVED NAMEPLATES

A. Nameplates:

1. Laminated thermoset plastic, 3/32 inch thick, engraved condensed block black lettering on white background, square corners, and beveled front edges.

2. Size: As required.

3. Letter Size: Minimum 3/16 inch, except main panel nameplate shall be minimum ½ inch.

4. Nameplates one inch or less in height shall have one mounting hole at each end. Nameplates greater than one inch in height shall have mounting holes in all four corners.

### 2.02 CUSTOM LABELS

A. Shall have black lettering on yellow background.

B. Shall not contain abbreviations in legend.

C. Shall be custom printed on continuous tape with permanent adhesive using thermal printer specified below.

### 2.03 WIRE IDENTIFICATION

A. All wire shall be labeled using vinyl, self-laminating, self-adhesive, wrap type labels that are heat, oil, water, and solvent resistant wire markers. Labels shall be by the W.H. Brady Co., or equal. Wire numbers shall be solid, machine printed, and shall not be pieced from other single or double-digit tags.

B. Where wire numbers change, the appropriate drawings shall include both wire numbers, clearly indicated, at the point of transition. Drawings shall also identify the insulation color for all wiring.

C. Wire Numbering: Unique wire numbers shall be per Section 26 05 19, Low-Voltage Electrical Power Conductors and Cable, and as shown on the Contract Drawings.

D. All terminals and terminal strips and posts shall be numbered with mylar applique number labels.

E. All panel wires and field wires shall be color-coded and have an alphanumeric identification tag at each point of termination.

F. Wire within conduits accessible by removing covers of conduit bodies, junction boxes and other devices in the conduit system shall be labeled.

G. All wire labels shall be clearly visible and not hidden by wire duct or other components in the enclosures.

H. Relay panel wire tag format and content shall be per Contract Drawings.

I. Hand written labels are not permitted.

J. Wire extending between two devices or items, and which does not undergo a change of function, shall be identified by a single unique designator as specified.

## 2.04 PULL BOXES AND JUNCTION BOXES

A. All pull and junction boxes shall be labeled with nameplates. Nameplates shall be engraved laminated plastic with black letters and numerals engraved on a white background and shall have beveled edges. Nameplates shall be engraved with characters 1" high on boxes larger than 12" x 12" and ½" high on boxes smaller than 12" x 12". Nominal size of nameplates shall be 2" x 6" except where larger sizes are required to contain all data required or where smaller is necessary to fit on the face size of a smaller junction box. Attach nameplates using stainless steel machine screws.

B. Marking with pen or paint will not be accepted.

## 2.05 FABRICATION

A. Engraved Identification Devices (Nameplates and Legend Plates):

1. All nameplate text shall remain preliminary and subject to change pending final review and acceptance after commissioning. Temporary tags consisting of removable tape or other accepted material with the preliminary nomenclature

legibly hand lettered shall be affixed to enclosures and cover plates to identify the enclosures and mounted components as required during assembly, factory testing, and start-up. Laminated plastic nameplates shall not be engraved until after commissioning of the associated system.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

A. Inspection

1. CONTRACTOR shall examine the conditions under which the work is to be installed and notify the ENGINEER in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

B. Electrical identification shall be provided as shown, specified or required.

C. Engraved Identification Devices (Nameplates and Legend Plates):

1. Temporary tags shall be provided at all locations until after start-up.

2. Unless otherwise specified, permanent nameplates shall be attached with a permanent adhesive and with stainless steel machine screws into drilled and tapped holes.

3. A nameplate with 1½ inch letters shall be provided to identify each console, cabinet, panel, or enclosure as shown or specified.

4. Nameplates shall be provided for field-mounted motor starters, disconnect switches, manual starter switches, pushbutton stations, and similar equipment operating components and shall describe the motor or equipment function and the circuit number.

5. On switchgear, nameplates shall be furnished for all main and feeder circuits including control fuses and also for all indicating lights and instruments.

a. A nameplate with 1 inch letters shall be provided giving switchgear designation, voltage rating, ampere rating, short circuit rating, manufacturer’s name, general order number and item number.

b. The individual door for each compartment shall be identified with a

nameplate giving them designation and circuit number as well as frame ampere size and appropriate trip rating.

D. Except conduit, all other electrical appurtenances including but not limited to lighting panels, convenience outlets, fixtures and lighting switches, shall be provided nameplates indicating the appropriate circuit breaker number(s).

E. Safety Sign and Voltage Markers:

1. Safety signs and voltage markers shall be provided on and around electrical equipment as specified and where shown.

2. Rigid safety signs shall be installed using stainless steel fasteners.

3. Surfaces shall be cleaned before application of pressure sensitive signs and markers.

4. Low voltage safety signs shall be mounted on all equipment doors providing access to uninsulated 480-volt conductors (including terminal devices).

5. Low voltage markers shall be installed on each terminal box, safety disconnect switch and panelboard installed, modified or relocated and containing 120/208-volt conductors.

F. Conduit Labeling System:

1. All conduits shall be labeled using self-adhesive Brady B-580 or B-595 vinyl film conduit & voltage markers, color coded, minimize size: 1-1/8" x 4-1/2" with a 7/8" character height, as manufactured by the W.H. Brady Co. or approved equal.

2. Installation:

a. All conduit including lighting and receptacle circuits shall be provided with unique conduit labels unless otherwise specified.

b. Flexible conduit shall not be labeled.

G. Wire and Cable Identification:

1. Color-coding of insulated conductors and identification shall comply with Section 260519, Low-Voltage Electrical Power conductors and Cable.

2. Wire and Cable Labels shall be provided as follows:

    a. New, rerouted, or revised wire or cable shall be labeled.

    b. All insulated conductors shall be labeled.

    c. Bare (non-insulated) conductors shall not be labeled unless otherwise shown or specified.

    d. Wire and cable terminations shall be labeled.

3. Wire labels shall be applied between ½ and 1 inch of the completed termination.

4. Cable labels shall be applied between ½ and 1 inch of cable breakout into individual conductors.

    a. Individual conductors in a cable shall be labeled after the breakout as specified for wires

5. Wire or cable exiting cabinets, consoles, panels, terminal boxes and enclosures shall be labeled.

    a. Wires or cables shall be labeled within two inches of the entrance to the conduit.

6. Wire or cable in junction boxes and pull boxes shall be labeled.

    a. Wires or cables shall be labeled within two inches of the entrance to the conduit.

7. Wire and cable installed in cable tray shall be labeled.

    a. Wire and cable shall have labels applied at 20-foot maximum intervals.

8. Wire and cable installed without termination in electrical manholes shall be labeled.

    a. Wire and cable shall have wrap-around labels applied within one foot of exiting the manhole.

9. Wire and cable labels shall be installed when the wire or cable is pulled and prior to termination of the conductors. Installation of wire and cable labels after the conductors are terminated is not permitted.

H. Pull and Junction Box Labeling System

1. All pull and junction boxes shall be labeled with nameplates as defined in Part 2.

**END OF SECTION**

# SECTION 31 10 00

# SITE CLEARING

## PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Protection of vegetation and other site features.

B. Removal of existing debris.

C. Removal of concrete and bituminous pavement.

1.02 REFERENCES

A. ASTM Standard C270, “Specification for Mortar for Unit Masonry,” ASTM International.

B. ASTM Standard C926, “Standard Specification for Application of Portland Cement-Based Plaster,” ASTM International.

C. Michigan Department of Transportation (MDOT), 2020 Standard Specifications for Construction.

1.03 SUBMITTALS

A. See Section 01 30 00 for submittal procedures.

B. Site Plan: Site Plan shall show Areas for temporary construction and field offices.

C. Written permission to use disposal sites.

D. Written evidence that proper arrangements have been made with the owner of the utility line, structure or pole that must be disturbed to accomplish the contracted Work.

E. Copy of the Soil Erosion and Sedimentation Control permit, if required.

1.04 QUALITY ASSURANCE

A. Prior to commencing earthwork, obtain a Soil Erosion and Sedimentation Control permit from the appropriate agency having jurisdiction, if required.

B. Prior to commencing earthwork, CALL MISS DIG three days in advance of work and receive clearance.

C. Secure all permits and post all bonds and deposits required to comply with the Soil Erosion and Sedimentation Control Act, Part 91 of PA 451 of 1994, as amended, and those of the enforcing agency.

1.05 PROJECT CONDITIONS

A. Minimize production of dust due to clearing operations; do not use water if it will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

B. Comply with other requirements specified in Section 01 70 00.

C. Protect trees, shrubs, and other vegetation that are outside the limits of the work and those that are within the limits of the work but not designated to be removed. Repair or replace trees, shrubs, and vegetation that are designated to be protected but are damaged by Contractor operations.

D. Protect existing culverts, sewers, drainage structures, manholes, water gate wells, hydrants, water mains, utility poles, overhead lines, underground conduits, underground cables, pavement, and other improvements that are outside the limits of the work and those that are within the limits of the work but are not designated to be removed. Repair or replace, to the satisfaction of the Owner, structures and improvements that are designated to be protected but are damaged by Contractor operations. Replace damaged water mains and seepage bed tile in accordance with the requirements of the local authority having jurisdiction.

E. Maintain existing open drains, field and roadway ditches, drainage tile, sewers, enclosed drains, natural and artificial watercourses, surface drainage, and other types of drainage within the limits of the work free to discharge during excavating, backfilling and compacting operations. Immediately repair, replace, or clear drainage facilities that are not designated to be abandoned but are damaged or whose drainage function is impaired by Contractor operations.

F. Maintain existing nearby roadways, sidewalks, and any other adjacent occupied site facilities during site clearing.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 23 23.

## PART 3 - EXECUTION

3.01 TOPSOIL AND SAND ON SITE

A. When construction takes place within private easements, sand shall not be removed from the private parcel or lot. If there is insufficient working area, the sand may be removed, stockpiled, and replaced on the original parcel or lot.

3.02 EXISTING UTILITIES AND BUILT ELEMENTS

A. Locations of existing utilities shown on the Drawings are approximate; coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits. Contact MISS DIG three days in advance of proposed work and the public agency or utility having jurisdiction to request verification of utilities within the construction area.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction. Unless otherwise indicated, maintain flow in existing utilities by diversion, pumping, fluming, relocation, or by other methods. At the conclusion of construction, return and reinstall diverted and relocated utilities to their original condition.

D. Protect existing structures and other elements that are not to be removed.

E. Remove existing signs, posts, fences, and utility structures as designated by construction documents, as noted. Store these items on the site, where designated by Owner, in reusable condition.

F. Expose utility lines prior to excavation to determine if conflicts with the proposed improvements exist. Be responsible for the cost of relocating items as required to resolve conflicts. Contact the owner of the utility for relocation.

G. Protect existing buildings and structures within the limits of the project. If it becomes necessary to move an existing structure in order to proceed with construction, discuss the proposed movement with the Engineer and Owner prior to construction.

3.03 LANDSCAPING

A. Do not remove or damage vegetation beyond the following limits:

1. 10 feet each side of surface walkways, patios, surface parking, and utility lines less than 12 inches in diameter.

2. Vegetation cover within 15 feet of utility trenches.

B. Install substantial, highly visible fences per construction documents to prevent inadvertent damage to vegetation to remain:

1. At vegetation removal limits.

2. Around other vegetation to remain within vegetation removal limits.

3. See Section 01 50 00 for fence construction requirements.

C. In areas where vegetation must be removed, but no construction will occur, remove vegetation with minimum disturbance of the subsoil.

F. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner. Prune tree limbs, branches, and roots that exhibit minor damage caused by Contractor operations to the satisfaction of the Engineer.

## 3.04 PAVEMENT

A. Where concrete and bituminous pavement is required by the Drawings to be removed, include removing and disposing of pavement only, including base courses and surface courses. Existing curb and gutter will remain except for those areas that are designated and approved for removal and replacement. Remove pavement to saw cut.

1. Perform saw cutting with a power-driven pavement saw approved by Engineer.

2. Provide minimum depth of saw cut of two inches.

B. Old pavement with a concrete or bituminous cap is considered as one pavement, whether or not there is a separation layer of earth, aggregate, or bituminous material between the old material and the cap.

C. Where integral curbs are to be removed flush with the existing pavement, perform removal by saw cutting or by cold milling, as approved by Engineer. Leave a neat and flush surface, without damage to the underlying pavement.

D. Remove integral curb and gutter by saw cutting. Do not remove less than 18 inches wide for sections with rolled or straight curb nor less than 24 inches wide at mountable curbs.

E. Remove and replace pavement that is damaged in areas beyond the designated removal limits.

## 3.05 FENCES

A. Remove fences only where indicated on the Drawings. Fill in voids and holes resulting from fence removal in compliance with Section 31 23 23.

B. Replace or restore existing fences whose removal was not called for on the Drawings; restore or replace to a condition comparable to that prior to construction.

C. After fence removal or relocation operations are complete, remove and properly dispose of surplus material, unless otherwise indicated.

## 3.06 ADJUST STRUCTURES

A. Adjust structures in which the elevation of the casting must be either raised twelve inches or less; or lowered six inches or less.

B. Carefully remove and store the existing frame and cover. Reinstall frame and cover on the same structure unless a new frame and cover are required by the Drawings.

C. Remove or install clay brick or concrete block adjustment rings as necessary to adjust the structure's frame and cover to the proper elevation. Set clay brick and concrete block adjustment rings in ASTM C270 Type S or Type M mortar, unless otherwise shown on the Drawings or determined by the Engineer.

D. Provide a Portland cement plaster coat on the outside surface of the new clay brick or concrete block structures, a minimum of 1/2 inch (10 mm) thick, in accordance with ASTM C926. Clean the structure prior to backfilling.

E. Backfill the structure in compliance with Section 31 23 23.

F. Maintain flow in the entire system while performing the Work.

G. Properly dispose of unsuitable material.

## 3.07 RECONSTRUCT STRUCTURES

A. Reconstruct structures in which the elevation of the casting must be raised more than twelve inches, lowered more than six inches, and where portions of the existing structure are deteriorated.

B. Carefully remove and store the existing frame and cover. Reinstall the frame and cover on the same structure unless a new frame and cover are required by the Drawings.

C. Remove the existing corbel entrance sections and precast concrete chimney type entrance, along with additional brick courses or precast concrete sections as necessary to achieve the amount of reconstruction required by the Drawings or as determined by the Engineer.

D. Install brickwork and precast concrete sections to meet the design grade. Set clay brick and concrete in ASTM C270 Type S or Type M mortar, unless otherwise shown on the Drawings or determined by the Engineer.

E. Furnish and install manhole steps so that the maximum spacing is 24-inches.

F. Provide a Portland cement plaster coat on the outside surface of the new clay brick or concrete block structures, a minimum of 1/2 inch (10 mm) thick, in accordance with ASTM C926. Clean the structure prior to backfilling.

G. Backfill the structure in compliance with Section 31 23 23.

H. Maintain flow in the entire system while performing the Work.

I. Properly dispose of unsuitable material.

## 3.08 RESTORATION IN RIGHT-OF-WAY

A. Restore right-of-way, not paved or aggregate-surfaced, as follows, unless indicated otherwise on the Drawings.

1. The disturbed areas may be shaped by "Machine Grading" or another method approved by the Engineer to achieve the cross section, line and grade shown on the Drawings.

2. Restore areas with slopes of 1-on-4 or flatter with topsoil and seed.

3. Restore areas with slopes steeper than 1-on-4 with topsoil and sod.

B. Properly dispose of excess material from the restoration operation.

C. Furnish, place, and compact additional fill, in compliance with Section 31 23 23, as needed to restore the disturbed areas to the cross sections called for on the Drawings or as determined by the Engineer.

## 3.09 RESTORATION OF PAVED SURFACES

A. Restoration includes furnishing backfill, compacting, forming, placing, rolling, floating, jointing, finishing, curing, and providing protection against elements.

B. Restore roadways that are partially damaged to include a minimum replacement of one (1) full width lane of roadway. The length of replacement shall be at least equal to the width.

C. Concrete Restoration

1. Backfill trenches crossing concrete driveways, sidewalks, roads, streets, or parking areas to the bottom of the proposed pavement, as specified in Section 31 23 16.

2. Unless otherwise specified on the Drawings or determined by the Engineer, replace removed concrete with 4,500 psi compressive strength concrete of the thickness removed. Include reinforcing equal to existing. Comply with Section 32 13 13.

3. Include construction of sidewalk ramps at the intersection of the curb with restoration of sidewalks. Provide sidewalk ramps that conform to the current rules and regulations of Act 8, Michigan PA 1973, as amended.

D. Bituminous Restoration

1. Backfill trenches crossing parking areas to the bottom of the base course, as specified in Section 31 23 16.

2. Replace bituminous pavement to match in kind.

3. Resurface bituminous-surfaced areas beyond the limits of the work when those surfaces are disturbed by the subject work including, but not limited to, the passage of equipment. Resurface with an approved bituminous mixture as shown on the Drawings, but in no case less than two (2) inches in thickness. Extend the replacement material to smooth-cut edges, uniform in direction and at an elevation that provides a uniform surface between the undisturbed abutting surfaces.

## 3.10 DEBRIS AND CLEAN-UP

A. Remove debris, junk, and trash from site.

B. Fill holes due to removal of earth in accordance with Section 31 22 00 and Section 31 23 23.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

**END OF SECTION**

# SECTION 31 22 00

# GRADING

## PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Removal and salvage of topsoil.

B. Rough grading the site for site structures, utilities, pavements, and berms.

C. Finish grading.

1.02 QUALITY ASSURANCE

A. Perform Work in accordance with these specifications. Maintain one copy of the specifications on Site.

1.03 PROJECT CONDITIONS

A. Protect above- and below-grade utilities that remain.

B. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

C. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs, designated to remain, from grading equipment and vehicular traffic.

D. Provide temporary erosion and sediment control in compliance with Section 01 5713.

## PART 2 - PRODUCTS

**NOT USED**

## PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that survey benchmark and intended elevations for the Work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect utilities that remain, from damage.

D. Call MISS DIG three days in advance of work and notify utility company to remove and/or relocate utilities.

E. Remove and dispose of vegetation, brush, stones, rocks and other objectionable litter and foreign material before the ground is broken for topsoil removal.

## 3.03 ROUGH GRADING

A. Remove existing pavements from areas to be further excavated or re-graded, without mixing with foreign materials.

1. Do not strip pavements if weather conditions are unsuitable.

2. If approved by Engineer, salvage topsoil for reuse.

3. Dispose of salvaged topsoil in excess of that required for the project.

B. Remove and dispose of material detrimental to site improvement in accordance with Section 31 10 00.

C. Do not remove topsoil when wet.

D. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded. Remove subsoil parallel to proposed finished grades and to elevations that allow for thickness of pavement section. Do not over-excavate.

E. Do not remove wet subsoil unless it is subsequently processed to obtain optimum moisture content.

F. When excavating through roots, perform work by hand and cut roots with sharp axe.

G. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

## 3.04 SOIL REMOVAL

A. Stockpile topsoil to be re-used on Site; remove remainder from Site. Locate stockpiles as near the original location as possible.

B. Stockpile subsoil to be re-used on site in an approved area and remove remainder from site. Segregate contaminated fill suitable for reuse as backfill from native uncontaminated soil and from imported engineered fill.

C. Stockpiles: Use areas designated on site; pile depth not to exceed 10 feet; protect from erosion; avoid diversion of storm water runoff, creating standing water, and interference of controlled irrigation.

1. Maintain stockpiled topsoil separate from stockpiled subsoil.

3. Locate and retain soil materials at least 100 feet away from edge of excavations.

3.05 FINISH GRADING

A. Before Finish Grading:

1. Verify trench backfilling has been inspected.

2. Verify subgrade has been contoured to grades and elevations shown on the Drawings and has been compacted.

B. Remove debris, roots, branches, stones, more than 1/2 inch in size. Remove soil contaminated with petroleum products in lawful manner.

C. Perform finished grading when the ground is frost-free and weather is favorable.

D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

E. Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregularities.

F. Lightly compact placed topsoil.

3.06 TOLERANCES

A. Top Surface of Subgrade: Plus, or minus (+/-) 1/10 foot from required elevation.

B. Top Surface of Finish Grade: Plus, or minus (+/-) 1/2 inch.

3.07 CLEANING AND PROTECTION

A. Remove unused stockpiled topsoil and subsoil. Grade the stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

**END OF SECTION**

# SECTION 31 23 13

# SUBGRADE PREPARATION

## PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Removal and salvage of topsoil.

B. Proof-rolling subgrade.

C. Undercutting and backfilling areas that are unstable.

1.02 QUALITY ASSURANCE

A. Perform Work in accordance with these specifications. Maintain one copy of the specifications on site.

1.03 PROJECT CONDITIONS

A. Protect above- and below-grade utilities that remain.

B. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

C. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs, designated to remain, from grading equipment and vehicular traffic.

D. Provide temporary erosion and sediment control in compliance with Section 01 57 13.

## PART 2 - PRODUCTS

**NOT USED**

## PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that survey benchmark and intended elevations for the Work are as indicated.

## 3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect utilities that remain from damage.

D. Call Miss Dig three days in advance of work and notify utility company to remove and/or relocate utilities.

E. Remove and dispose of vegetation, brush, stones, rocks and other objectionable litter and foreign material before the ground is broken for topsoil removal.

## 3.03 ROUGH GRADING

A. Remove existing pavements from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

1. Do not strip pavements if weather conditions are unsuitable.

2. If approved by Engineer, salvage topsoil for reuse.

3. Dispose of salvaged topsoil in excess of that required for the project.

B. Remove and dispose of material detrimental to site improvement in accordance with Section 31 1000.

C. Do not remove topsoil when wet.

D. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded. Remove subsoil parallel to proposed finished grades and to elevations that allow for thickness of pavement section. Do not over-excavate.

E. Do not remove wet subsoil unless it is subsequently processed to obtain optimum moisture content.

F. When excavating through roots, perform work by hand and cut roots with sharp axe.

G. Proof-roll subgrade to receive fill material with a fully loaded tandum dump truck to detect unstable areas.

H. Stability: Replace damaged, displaced and/or unstable subsoil to same requirements as for specified fill.

3.04 TOLERANCES

A. Top Surface of Subgrade: Plus or minus (+/-) 1/10 foot from required elevation.

3.05 CLEANING AND PROTECTION

A. Remove unused stockpiled topsoil and subsoil. Grade the stockpile area to prevent standing water.

**END OF SECTION**

# SECTION 31 23 16

# EXCAVATION

## PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Excavating for foundation, paving, and utility infrastructure installation.

1.02 SUBMITTALS

A. Submit sheeting, shoring, and bracing plans for information only (if used).

B. Excavation Plan: Prior to the start of excavation work, submit written plan that demonstrates compliance with the Contract Documents and OSHA Standard 29 CFR Part 1926.650. As a minimum, include:

1. Name of competent person responsible for excavation operations.

2. Excavation method(s) and protective system(s) to be used.

3. Manufacturer's data if proprietary protective system(s) are designed based on such data.

C. Stockpiling Plan: Prior to the start of excavation work, submit temporary soil stockpiling plan. Include provisions for maintaining stockpiles during the work and removal of stockpiles upon completion of the work.

1.03 QUALITY ASSURANCE

A. Obtain necessary permits for work in roads, rights-of-way, railroads, etc. Also obtain permits as required by local, state, and federal agencies for discharging water from excavations.

B. Perform Work in compliance with applicable requirements of governing authorities having jurisdiction, including local, county, state, and federal requirements, as applicable.

C. Comply with OSHA Standard, Title 29, Code of Federal Regulations, Part 1926, Section 650 (Subpart P - Excavations).

1.04 PROJECT CONDITIONS

A. Verify that survey benchmark and intended elevations for the Work are as indicated.

B. Protect plants, lawns, rock outcroppings, and other features to remain.

C. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

D. Perform excavations as indicated on the Drawings.

E. Existing Structures

1. Surface structures and underground structures shown on the Drawings are based on existing records and limited investigation. This information is provided for the convenience of the Contractor and is not guaranteed to be complete or correct.

2. Explore ahead of the required excavation to determine exact locations of structures.

3. Support and protect existing structures from damage. Immediately restore damaged and broken structures at no cost to Owner if damage or breakage was the result of Contractor operations.

F. Existing Utilities

1. Locate existing underground utilities in the areas of Work. If utilities are to remain in place, provide adequate means of protection.

2. If uncharted or incorrectly charted piping or other utilities are encountered during excavation, consult piping or utility owner and Engineer immediately for direction. Cooperate with Owner and utility owner in keeping services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

3. Do not interrupt utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.

4. Demolish and completely remove from site underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

G. Protection of Persons and Property

1. Barricade open excavations occurring as part of the work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

H. Dust Control: Conduct operations and maintain areas of activity to minimize creation and dispersion of dust, including sweeping and sprinkling of roadways. Calcium chloride may be used to control serious or prolonged dust problems, only when explicitly approved in advance by Engineer.

I. Temporary Fencing: Furnish and install a temporary fence surrounding excavations.

J. Protect excavations by proper sloping, shoring, and bracing or any other method required to conform to all MIOSHA requirements and prevent soil movement.

K. Provide the minimum required frost protection for any shallow foundations during excavations.

L. Notify owner representative of unexpected surface conditions in accordance with project documents.

## PART 2 - PRODUCTS

A. Excavated materials that contain debris, organics, and other deleterious materials should not be used as backfill material in the structural areas, but can only be used for backfill in non-structural areas, such as landscape areas.

## PART 3 – EXECUTION

3.01 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 22 00 for additional requirements.

C. Clear landscaping to include trees, brush, roots, stumps, logs, vegetation, sod, topsoil, organic matter, wood, and other materials and debris from areas to be occupied by permanent construction or embankments or excavations as needed.

1. Promptly remove waste materials from the site.

2. Properly dispose of water materials. Burning and/or encapsulating debris are not permitted.

D. Carry out program of pre-excavation, excavation, groundwater control, excavation support and bracing in such manner as to eliminate undermining or disturbing buried utilities, conduits, foundations of existing structures, or of work previously completed under this project contract.

E. Do not plow, scrape, or dig by mechanical means (e.g., excavator, loaders, etc.), earth near the finished subgrade in a manner that will result in disturbance of material below subgrade. Remove with pick and shovel, material to be excavated, just before placing pipe, concrete, or other structure.

F. Excavate to widths that give suitable room for buildings and structures or laying and jointing piping or other utilities; furnish and place all sheeting, bracing, and supports; do all coffer damming, pumping, and draining; and render bottom of excavations firm and dry and acceptable in all respects.

## 3.02 SHEETING, SHORING AND BRACING

A. Furnish, place, and maintain sheeting, shoring, and bracing of the excavation to ensure safety of people in and around the excavation. Protect the new Work, existing construction, and pedestrian and vehicular traffic.

B. Be responsible for the design of sheeting, shoring, and bracing. Design to provide strength, quality, dimension and spacing of sheeting, shoring, and bracing of existing soil conditions to prevent caving, loss of ground, and squeezing within the lines of the excavation and effectively restrain movement of the adjacent soil.

1. Design in conformance with current federal, state, and local regulations for safety.

2. Do not permit sheeting, shoring, and bracing to come into contact with pipes. Install sheeting, shoring, and bracing to prevent concentrated loads and horizontal thrusts from being transmitted to the pipe.

C. Where indicated on the Drawings and where necessary in the Work, leave sheeting, shoring, and bracing in place.

D. Provide supports for pipes, conduits, and similar construction that crosses the excavation. If required, leave such supports in place.

E. Do not remove sheeting, shoring, and bracing until pipes in trenches have been properly bedded and the trench has been backfilled to sufficiently support the external loads.

F. Do not remove earth material below the bottom of a shield beyond the limits established by ordinances, codes, laws, and regulations.

G. When removing or moving a shield ahead, take care to prevent movement of pipe or structures and avoid disturbing the bedding for pipes and structures. Remove and reinstall pipes and structures that are disturbed.

## 3.03 EXCAVATING

A. Excavate to accommodate construction operations. Excavation is unclassified, and includes contaminated and uncontaminated earth, sand, clay, gravel, hardpan, boulders not requiring drilling and blasting for removal, concrete debris, decomposed rock, pavements, rubbish, and other materials within the excavation limits.

B. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Verify soil bearing capacity and obtain Owner's Representative approval of soil conditions prior to placing any concrete or fill soils.

D. Excavate all classes of materials and obstructions encountered for work specified under this Contract to the lines and grades shown on the drawings.

E. Periodically inspect excavations. If any signs of instability are found, promptly notify the Owner's Representative, and immediately begin remedial action to stabilize the condition.

F. Unless otherwise indicated, provide open excavations for structures and pipelines. Utilize protection systems as follows:

1. Excavation Less Than Three Feet Deep: Excavations in soils where there is not potential for a cave-in may be made with vertical sides. For other soils, provide excavations that are sloped and benched, shielded, or shored and braced.

2. Excavation More Than Three Feet Deep: Provide excavations that are sloped and benched, shielded, or shored and braced.

3. Install and maintain protection system(s) in compliance with the approved Excavation Plan.

G. Excavate so that future work can be laid to the alignment, grade, and dimensions indicates on the drawings.

H. Do not interfere with 45 degree bearing splay of foundations.

I. Cut utility trenches wide enough to allow inspection of installed utilities.

J. Perform pavement cutting by saw or other methods satisfactory to the authorities having jurisdiction. Do not perform pavement breaking by drop weight or other impact type equipment.

K. Hand trim excavations. Rounded and undercut edges will not be permitted for footing excavations. Remove loose matter.

L. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.

M. Provide subgrade for roadways, structures and trench bottoms that is firm, dense, and thoroughly compacted and consolidated; free from mud, muck, and other soft or unsuitable materials; and firm and intact.

1. Reinforce subgrade that is otherwise solid but becomes soft or mucky on top due to construction operations, with crushed stone or gravel.

2. Do not permit the finished elevation of stabilized subgrade to be above subgrade elevations shown.

N. Grade top perimeter of excavation to prevent surface water from draining into excavation.

O. Remove excavated material that is unsuitable for re-use from site.

P. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 22 00.

Q. Remove excess excavated material from site.

R. Control groundwater infiltration in all excavations to avoid disturbing soils on the bottom and sides of excavation.

S. Where excavations may expose existing foundations to potential frost heave, provide adequate protection to prevent freezing below foundations.

T. Fill over-excavated areas in accordance with directions by Owner's Representative. If the over-excavation is a result of contractor error, work will be at no additional cost to the Owner.

U. Dispose of materials removed from the site in compliance with ordinances, codes, laws, and regulations of authorities having jurisdiction.

## 3.04 EXCESS EXCAVATION

A. Excess excavation is defined as surplus earth material, free of brush, roots, stumps, broken concrete, pipe, debris, and other extraneous material, that is realized from the construction.

B. When requested by the Owner, transport excess excavation to a site(s) designated by the Owner. Grade the excess excavation to provide positive surface drainage of the site so that adjacent properties are not damaged or affected. Include removal of surface irregularities to provide a smooth surface (± 0.25 foot).

C. When transportation of excess excavation has not been requested by the Owner, remove and properly dispose of the material.

D. Brush, roots, stumps, broken concrete, pipe, debris, and other extraneous material from the construction is the property of the Contractor. Properly dispose of this material in accordance with applicable laws, rules, and regulations.

3.05 DRAINAGE AND DEWATERING

A. Prevent surface and subsurface water from flowing into excavations and from flooding adjacent areas.

B. Remove water from excavation as fast as it collects.

C. Maintain the ground water level below the bottom of the excavation to provide a stable surface for construction operations, a stable subgrade for permanent work, and to prevent damage to the Work.

3.06 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.

B. Provide for visual inspection of storm basins and pipe during construction.

3.07 PROTECTION

A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

**END OF SECTION**

**SECTION 31 23 16.13**

**TRENCHING**

## PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Requirements for trenching for construction of conduits, pipelines, roads, and other facilities.

1.02 REFERENCE STANDARDS

A. ASTM (ASTM International)

1. ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft$^3$ (2,700 kN-m/m$^3$))

B. MIOSHA (Michigan Occupational Safety and Health Act)

C. MDOT (Michigan Department of Transportation) Standard Specification for Highway Construction, current edition.

1.03 QUALITY ASSURANCE

A. Permits and Regulations:

1. Obtain all permits necessary for work (e.g. in roads, rights-of-way, railroads). Also obtain permits as required by local, state, and federal agencies.

2. Perform trenching work in compliance with applicable requirements of governing authorities having jurisdiction.

1.04 SUBMITTALS

A. Excavation Plan: Prior to start of excavation operations, submit written plan to demonstrate compliance with MIOSHA. As a minimum, excavation plan will include:

1. Name of competent person.

2. Excavation method(s) or protective system(s) to be used.

3. Disposal method(s) and permission(s) for the operation.

4. Copies of "manufacturer's data" or other tabulated data if protective system(s) are designed on the basis of such data.

B. Shop Drawings: Submit the following:

1. Trench System including excavation support, support of existing utilities, proposed slopes, etc.

2. Groundwater Control system.

3. Prepare Shop Drawings by a licensed professional engineer registered in the State of Michigan recognized as expert in the specialty involved. Also submit for information, calculations, and all other pertinent information. Contractor, however, will be responsible for designing, installing, operating, and maintaining the system(s) as required to satisfactorily accomplish all necessary ground support, bracing, protection, underpinning, and groundwater control.

C. If in need of additional area outside the property, obtain written permission from the adjacent property owner and submit copy to the Engineer.

D. Before disturbing any existing utility, submit to the Engineer documents of proper arrangements, permits, and approvals with the owner of the utility.

1.05 SITE CONDITIONS

A. Existing Utilities: Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during all operations.

1. If uncharted or incorrectly charted piping or other utilities are encountered during excavation, consult Engineer immediately for directions on how to proceed. Cooperate with Utility Owner in keeping services and facilities in operation. Repair damaged utilities caused by Contractor to satisfaction of utility Owner.

2. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided. Provide temporary utility services and all temporary utility relocations.

3. Demolish from site or abandon existing underground utilities indicated to be removed or abandoned as indicated on the project drawings. Coordinate with utility companies for shut-off of services if lines are active.

B. Protection of Persons and Property: Barricade open excavations occurring as part of the Work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

1. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

2. Replace damaged elements at no additional cost to the owner.

## PART 2 - PRODUCTS

**NOT USED**

## PART 3 - EXECUTION

3.01 TRENCHING

A. Start trenching operation at the downstream or outlet end of the new work and proceed upstream, unless otherwise discussed and approved by the owner representative.

B. Excavate the trench in reasonably close conformity with the lines and grades specified on the project drawings.

C. Transport excess excavated materials and/or material not conforming to backfill material requirements offsite and dispose of in accordance with local, state, and federal regulations.

D. Provide width of the trench in accordance with standard requirements provided on the drawings to permit the installation of the pipe and the compaction of the bedding material under and around the pipe.

E. All trench excavations will be adequately sloped, braced and/or sheeted where necessary to prevent caving or squeezing of the soil and to prevent undermining of existing pavements and endangerment of existing structures.

F. Furnish, place, and maintain at all times sheeting, shoring, and bracing of the trench as may be required for safety of the workmen and for protection of the new work or adjacent structures. This includes pavement, curbs, sidewalks, pipes, conduits next to or crossing the trench, and the protection and safety of pedestrian and vehicular traffic.

1. Sheeting, shoring, and bracing must conform to the current federal or state regulations for safety. Supports for such items as pipes and conduits crossing the trench will conform to the requirements of the Owners of such facilities, and if necessary, will be left in place. Do not remove the trench sheeting,

shoring, and bracing unless the pipe has been properly bedded, and the trench backfilled to sufficiently support the external loads. Also, the sheeting, shoring, and bracing material will not come in contact with the pipe, but will be installed so that no concentrated loads or horizontal thrusts are transmitted to the pipe.

G. Refer to Section 31 23 23.13 regarding trench backfilling requirements.

H. Compaction of the backfill will not be paid for separately but will be considered incidental to the work of backfilling and will include all the work of manipulating the soil to obtain the specified densities. No additional compensation will be allowed for any delay required to obtain the specified moisture content or specified density.

I. Cleanup: Immediately following the placing and compacting of the backfill, remove and dispose of the excess material at the Contractor's expense. Level the construction area and leave in a neat workman-like condition.

1. At a seasonally correct time, approved by the Engineer, rake the disturbed area, place topsoil, fertilize, and seed as specified in Section 32 90 00.

J. Testing: During the course of the work, the Engineer may require testing for compaction or density of the backfill. The taking of samples and the testing required will be performed by a testing laboratory approved by the Engineer. Testing procedures will conform to ASTM D1557 and to current MDOT Standards for Construction.

K. Defective Work: Any portion of the trench backfill which is deficient in the specified density will be corrected by methods meeting the approval of the Engineer. Testing, retesting, or sampling required because of deficiencies will be at the Contractor's expense.

3.02 DISPOSAL OF EXCAVATED MATERIALS

A. Remove and dispose of existing soil fill removed from the excavations which do not conform to the requirements for fill or are in excess of that required for backfill. Contractor shall perform and pay for any required testing for disposal.

3.03 TEMPORARY FENCING

A. Furnish and install a temporary fence surrounding trenching and work area in accordance with the agency having jurisdiction and Owner requirements. Contractor shall provide any required construction safety signs with the temporary fence.

**END OF SECTION**

# SECTION 31 23 19

# GROUND WATER CONTROL

## PART 1 - GENERAL

1.01 SUMMARY

A. Section includes dewatering system and groundwater control requirements associated with utility construction and excavation plan.

B. Furnish all labor, equipment, and materials necessary to complete the required dewatering operations.

C. Dewatering shall be maintained at all times to control groundwater infiltration as well as storm water runoff to provide a stable, firm excavation bottom for construction.

1.02 SITE CONDITIONS

A. Protection of Existing Structures:

1. Determine and verify the location of existing underground utilities before starting excavation or installation operations. If utilities are to remain in place, provide protection from damage during excavation operations. Contractor is responsible to provide all protections for any existing structures during excavation procedures.

2. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Engineer, and then only after acceptable temporary utility services have been provided.

1.03 SUBMITTALS

A. Submit for Engineer's record a copy of all dewatering discharge permits.

B. Submit types and sizes of water treatment units and/or storage containers, as necessary.

C. Submit groundwater disposal plan showing method of discharging and/or disposing of groundwater.

D. Submit detailed plans of the proposed dewatering system including the following:

1. A detailed description of equipment and materials to be used and the procedures for installation, operation, and maintenance in relation to the construction sequences of associated facilities, including but not limited to the size of pumps, water discharge lines and their location relative to water

discharge points, location of sumps, details of sump construction, bottom grading plans, means to limit pumping of soil fines, locations of french drains, and details of construction including fabrics and stones.

2. Locations and depths of all dewatering components points of disposal for pumped water.

3. The plan for power supply for dewatering system.

4. Required standby equipment if power is lost during dewatering operations.

5. Groundwater disposal plan showing the groundwater discharging or disposing method.

6. Monitor and report weekly the volumetric flow rate (gpm) at each installed sump well. Contractor is required to monitor and report weekly the flow volume (gpm). Contractor will be required to monitor overall volume (gpm) of complete groundwater control system at the final discharge point.

E. Submit resume and qualifications of dewatering superintendent and/or foreman.

F. Submit proposed surface water control plan (i.e. cutoff wall, dikes, ditches, sump, etc.) for both outside and inside the excavation.

G. Submit a contingency plan to continue groundwater control in the event of a failure of the primary groundwater control system including such items as pumps, primary electric, and treatment units.

H. Submit a quality control and quality assurance plan for the work of this section. At a minimum provides all testing procedures, limits of acceptability, and methodology to prove that the completed work is as specified in the Contract Documents.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Provide materials and equipment suitable to meet the dewatering requirements.

B. Provide materials and equipment for soil erosion and sedimentation control per the requirements of Section 01 57 13.

## PART 3 - EXECUTION

3.01 GENERAL

A. Coordinate with the utility owner to obtain and pay for all permits for discharge of temporary dewatering and drainage systems.

B. Original permits shall be given to the Engineer for records and prominently displayed on the site prior to constructing dewatering and drainage systems.

C. Collect and analyze water samples as necessary to verify compliance with the requirements of the owner of the system into which the effluent is discharged. Any sample collection, shipping costs, and testing will be paid for by the Contractor and are incidental to the Contract. Obtain special discharge permit from authorities having jurisdiction. Treat water (if required) prior to discharge in accordance with permit requirements. Provide water treatment or storage containers, as necessary to collect/store and treat water (if required) prior to discharge.

D. Furnish, install, operate, monitor, maintain, and remove temporary dewatering and drainage systems as required to adequately perform the utility installation and excavation work. A dry excavation must be maintained.

E. Collect and properly dispose of any discharge water from dewatering and drainage systems in accordance with State and local requirements and permits.

F. Repair damage caused by dewatering and drainage system operations.

G. Remove temporary dewatering and drainage systems when no longer needed. Restore all disturbed areas.

H. Control surface water and groundwater such that excavation during construction is made in-the-dry, and bearing soils are maintained undisturbed. Prevent softening, or instability of, or disturbance to the subgrade due to water seepage. Very heavy loads will bear on the subgrade materials; if the Contractor does not maintain adequate stability or prevent softening, the Contractor will be required to implement an approved subgrade improvement program at no additional cost to the Owner.

I. Provide protection against floatation for all work.

J. Coordinate and schedule dewatering activities with the Engineer.

K. Coordinate construction operations to minimize duration and extent of dewatering required.

L. Perform construction dewatering in a manner that will protect existing roads, structures, and above ground and underground utilities. The Contractor shall be solely responsible for preventing damage to roads, buildings or structures, sewers and other utility installations, pavements, sidewalks, and other property which may result from Contractor's groundwater control operations.

M. The Contractor must immediately repair any structure damaged as a result of the dewatering operations at no additional cost to the Owner.

N. If there are indications of a hydraulic gradient causing uncontrolled flow, seepage, or ground instability, increase the capacity of the groundwater control system, undertake a grouting program to control or limit seepage, or take other supplementary measures to reduce water pressure immediately adjacent to the excavation.

O. Provide and maintain emergency power and associated items such that the system will function in the event of power failure. Provide automatic switching gear.

P. Collection and disposal of groundwater discharge shall be performed in accordance with all local, state and federal codes, rules, and regulations.

3.02 SURFACE WATER CONTROL

A. Control surface water runoff to prevent flow into excavations. Provide temporary measures such as cutoff walls, French drains, dikes, ditches, and sumps.

B. Control surface water inside the excavation using appropriate measures to divert any groundwater or storm water runoff into collection systems then discharged in accordance with the requirements of the Contract Documents. The Contractor may consider placing mud-mat or appropriate stone material on top of the excavation subgrade to facilitate drainage and collection of water to maintain dry conditions.

C. Provide plan for Engineer review and approval that details surface water control system for both inside and outside of the excavation.

3.03 DISPOSAL OF DRAINAGE

A. The effluent must meet the requirements of any permit, regulation, or requirement of the system owner into which the effluent is discharged. The effluent must be tested, and a special discharge permit must be obtained from the governing jurisdiction prior to discharge into the nearby collection system, if applicable.

3.04 REMOVAL

A. Remove sumps and all other associated dewatering system components upon completion of work.

B. Remove water storage containers upon completion of work (if used).

**END OF SECTION**

**SECTION 31 23 23.13**

**SOIL BACKFILLING**

## PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Requirements for backfilling of excavation or trenches to the original surface of the ground or to such other grades as may be shown or required.

1.02 REFERENCE STANDARDS

A. American Concrete Institute (ACI)

1. ACI 347 Guide to Formwork for Concrete

B. ASTM (ASTM International)

1. ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft$^3$ (2,700 kN-m/m$^3$))
2. ASTM D2974 Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

C. MDOT (Michigan Department of Transportation)

1. Standard Specification for Highway Construction, current edition.

## PART 2 - PRODUCTS

2.01 GENERAL

A. Backfill with sound materials, free from waste, organic matter, rubbish, boggy, or other unsuitable materials.

B. General Materials Requirements: Ensure that materials used for backfilling conform to the agency having jurisdiction specified requirements provided on the project Drawings. Follow suitable fill requirements whenever drainage or select fill is not specified. Determine and obtain the approval of the appropriate test method where more than one compaction test method is specified.

C. Frozen Materials: Do not use frozen material for backfilling.

D. Stockpiling: Do not stockpile material on top of existing underground structures.

E. More specific requirements may be shown on project Drawings.

F. Backfill all annular spaces near or under pavement and structures with select fill compacted to 95% of the maximum dry density as determined by the Modified Proctor Test (ASTM D1557).

2.02 SELECT FILL

A. Materials for Select Fill: Use MDOT Class II Granular Material as approved for Fill and thoroughly compact to 95 percent of the maximum dry density obtainable by ASTM D1557.

1. Very fine sand, uniformly graded sands and gravel, or other materials having a tendency to flow under pressure when wet are unacceptable.

2. Existing on-site soils are not considered suitable for use as select fill, regardless of whether such soils meet the gradation requirements for select fill. Select fill is strictly an imported material brought to the site from off-site sources.

B. Materials for Drainage Aggregate: Use material meeting the requirements for MDOT 17A or MDOT 6A coarse aggregate produced from natural materials. Material produced from crushed concrete or slag is not acceptable and may not be placed as drainage aggregate.

C. Materials for Common Fill: Non-contaminated material from on-site excavation may be used as common (non-structural) fill provided that it can be readily compacted to 90 percent of the maximum dry density obtainable by ASTM D1557 and is sound material free of waste, organic matter, rubbish, or other unsuitable material. Select fill may be used as common fill at no change in the contract price.

1. Granular Materials On-Site: Granular on-site material, which is fairly well graded between the following limits may be used as granular common fill:

| U.S Standard Sieve Size | Percent Passing by Weight |
|---|---|
| 3-inch | 100 |
| #10 | 50-100 |
| #60 | 20-90 |
| #200 | 0-20 |

2. Cohesive Materials On-Site: Cohesive site material that is obtained from excavation above the higher of the groundwater level may be used as common fill. Use of these materials should be limited for the cohesive materials with liquid limit less than or equal to 40 and plasticity index less

than or equal to 20. Cohesive On-site materials is excluded from use as the containment soil barrier material. See 31 35 26.13.

2.03 PIPE BEDDING FOR DIRECT BURIED PIPE

A. Bed the placed pipe with a minimum of 4-inches of compacted approved sand or aggregate fill continued to 1-foot above the pipe. Sand or aggregate fill used for bedding should contain the following: 100% passing 3/8-inch sieve or as specified on the project drawings.

B. Place bedding in accordance with agency having jurisdiction standards and project Drawings.

2.04 TOPSOIL

A. Topsoil is defined as friable clay loam surface soil found in a depth of not less than 3 inches. Topsoil will be substantially free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material. Minimum organic content of 3.5% when determined in accordance with ASTM D2974.

B. Strip topsoil which is satisfactory to whatever depths are encountered, and in such manner as to prevent intermingling with the underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping.

2.05 AGGREGATE FILL

A. See Section 32 11 23 for aggregate fill requirements.

## PART 3 - EXECUTION

3.01 GENERAL

A. For areas to be covered by topsoil, leave or stop backfill 3 inches below the finished grade or as indicated in Section 32 90 00. Remove from all backfill, any compressible, putrescible, or destructible rubbish and refuse and all lumber and excavation supports from the excavated space before backfilling is started.

B. Equipment Limitations: Do not permit construction equipment used to backfill to travel against and over cast-in-place concrete structures until the specified concrete strength has been obtained, as verified by concrete test cylinders. In special cases where conditions warrant, the above restriction may be modified, provided the concrete has gained sufficient strength, as determined from test cylinders, to satisfy design requirements for the removal of forms and the application of load.

## 3.02 SOURCE QUALITY CONTROL

A. A qualified laboratory will be selected and paid by the Owner to perform tests on fill materials. The Contractor will bear cost of testing materials which fail to conform to Specifications on the first test. Test results and laboratory recommendations will be available to Contractor.

B. Provide samples of each fill material from the proposed source of supply. Allow sufficient time for testing and evaluation of results before material is needed. Submit samples from alternate source if required.

C. Engineer will be sole and final judge of suitability of all material.

D. The laboratory will determine maximum dry density at optimum water content in accordance with ASTM D1557.

E. Tests of material as delivered may be made from time to time. Materials in question may not be used pending test results. Remove rejected materials and replace with new approved material.

## 3.03 DUST CONTROL

A. During progress of work, conduct operations and maintain area of activities, including sweeping and sprinkling of streets or parking lots as necessary, so as to minimize the creation and dispersion of dust; maintain dust control.

## 3.04 PIPE BEDDING AND INITIAL BACKFILL

A. Pipe Fill: Suitably support pipes and prevent pipe float to prevent damage to piping. Place select fill by hand for initial pipe backfill from top of bedding to a minimum 1 foot over top of pipes in uniform layers not greater than 6 inches in loose thickness. Tamp and thoroughly compact in place the select fill with suitable mechanical or pneumatic tools to not less than 95 percent of the maximum dry density as determined by ASTM D 1557.

B. Do not place large stone fragments in the pipe bedding or backfill to 1 foot over the top of pipes, nor nearer than 2 feet at any point from any pipe, conduit, or concrete wall.

C. Do not use pipe bedding containing very fine sand, uniformly graded sands and gravels, or other materials that have a tendency to flow under pressure when wet.

## 3.05 TRENCH BACKFILL

A. General: Backfill trenches from 1 foot over the top of the pipe, or as shown to the bottom of pavement base course, subgrade for lawns or lawn replacement, to the top of the existing ground surface or to such other grades as may be shown or required.

B. Materials: Provide select fill, suitable job-excavated material, or other material, as specified and approved for trench backfill.

C. Depth of Placement - General: Except under pavements, walkways, and street appurtenances, or as otherwise specified, place trench backfill in uniform layers not greater than 12 inches in loose thickness and thoroughly compact in place using suitable mechanical or pneumatic equipment. Compact backfill to not less than 90 percent of the maximum dry density as determined by ASTM D1557.

D. Depth of Placement - Traffic Areas and Under Utilities: Where pavements, walkways, or street appurtenances are to be placed over trenches and utilities or utility services crossing the trench, provide trench backfill using select fill placed in uniform layers not greater than 9 inches in loose thickness and thoroughly compacted in place with equipment as specified above. Compact backfill to not less than 95 percent of the maximum dry density as determined by ASTM D1557.

E. Dropping of Material on Work: Do not allow backfilling materials to drop from any great vertical distance directly onto conduit or pipe. Do not allow backfilling material from a bucket to fall directly onto a structure or pipe; lower the bucket so that the shock of falling earth does not cause damage.

F. Distribution of Large Materials: Where possible, break-up lumps. Distribute stones, pieces of crushed rock or lumps which cannot be readily broken up throughout the mass so that all interstices are solidly filled with fine material.

## 3.06 STRUCTURE BACKFILL

A. Use of Select Fill: Use select fill beneath all structures and adjacent to structures where pipes and connections are to be located within this fill, except where aggregate base course or drainage aggregate is specified or shown on project drawings. Use select fill beneath all pavements, walkways, and extend to the bottom of pavement base course or ballast. Use select fill or aggregate fill where indicated on drawings.

1. Place backfill in uniform layers not greater than 9 inches in loose thickness and thoroughly compact in place with suitable approved mechanical or pneumatic equipment.

2. Compact backfill to not less than 95 percent of the maximum dry density as determined by ASTM D1557.

3. Place base course beneath all concrete and asphalt repairs, to the depths, lines and grades shown on the drawings, and compacted to 95 percent of the maximum dry density as determined by ASTM D1557.

B. Use of Clay: In unpaved areas adjacent to structures for the top 1 foot of fill directly under lawn subgrades use low cohesive clay (other than wet unstable clay) backfill placed in 6-inch lifts. Compact clay backfill to not less than 90 percent of the maximum dry density as determined by ASTM D1557.

1. Use clay having a liquid limit less than or equal to 40 and a plasticity index less than or equal to 20.

C. Use of Common Fill: Use common granular fill adjacent to structures in all areas not specified above or as indicated on drawings, unless otherwise shown or specified. Select fill may be used in place of common granular fill at no additional cost.

1. Extend such backfill from the bottom of the excavation or top of bedding, to the bottom of subgrade for lawns or planting areas, or to such other grades as may be shown or required.

2. Place backfill in uniform layers not greater than 12 inches in loose thickness and thoroughly compact in place with suitable equipment, as specified above.

## 3.07 COMPACTION EQUIPMENT

A. Equipment and Methods: Carry out all compaction with suitable approved equipment and methods.

1. Compact clay and other cohesive material with sheep's-foot rollers or similar equipment where practicable. Use handheld pneumatic tampers elsewhere for compaction of cohesive fill material.

2. Compact low cohesive soils with pneumatic-tire rollers or large vibratory equipment where practicable. Use small vibratory equipment elsewhere for compaction of cohesionless fill material.

3. Do not use heavy compaction equipment over pipelines or other structures unless the depth of fill is sufficient to adequately distribute the load.

## 3.08 FINISH GRADING

A. Topsoil: Spread the topsoil uniformly to provide a smooth, even surface at the finish grades indicated on the Drawings or acceptable to the Engineer. After spreading, compact the topsoil lightly, as necessary, to minimize settlement. Final grades will be free of voids and soft spots.

B. Final Contours: Perform finish grading in accordance with the completed contour elevations and grades shown and blend into conformation with remaining natural ground surfaces.

1. Leave all finished grading surfaces smooth and firm to drain.

2. Bring finish grades to elevations in accordance with Section 31 22 00.

C. Surface Drainage: Perform grading outside of building or structure lines in a manner to prevent accumulation of water within the area. Where necessary or where shown, extend finish grading to ensure that water is carried to stormwater infrastructure, and the site area left smooth and free from depressions holding water.

D. Perform finished grading when the ground is frost-free and weather is favorable.

## 3.09 RESPONSIBILITY FOR AFTER SETTLEMENT

A. Correct depressions which may develop in backfilled areas from settlement within one year after the work is fully completed. Provide as needed, backfill material, pavement base replacement, permanent pavement, sidewalk, curb and driveway repair or replacement, and lawn replacement, and perform the necessary reconditioning and restoration work to bring such depressed areas to proper grade as approved.

## 3.10 INSPECTION AND TESTING OF BACKFILLING

A. Sampling and Testing: The Owner will retain testing services for backfilling operations. Cooperate with testing agency and provide accommodations and access for testing agency to complete their work.

B. Correction of Work: Correct any areas of unsatisfactory compaction by removal and replacement, or by scarifying, aerating, or sprinkling as needed and re-compaction in place prior to placement of a new lift.

**END OF SECTION**

**SECTION 31 23 23.23**

**COMPACTING**

## PART 1 - GENERAL

1.01 SUMMARY

A. Section includes backfill compaction operations. The work includes, but is not limited to:

1. Proof-rolling, stabilization, and compaction of subgrade.

2. Placement and compaction of backfill.

1.02 REFERENCE STANDARDS

A. ASTM (ASTM International)

1. ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft$^3$ (2,700 kN-m/m$^3$))

1.03 SITE CONDITIONS

A. Protect structures and utilities from damage during earthwork/compaction operations.

B. Repair or replace damage to existing structures caused by earthwork/compaction operations, at no extra cost to the Owner.

1.04 QUALITY ASSURANCE

A. The Owner will retain the Engineer to provide quality assurance and testing of earthwork operations.

B. Notify the Engineer at least three days before starting earthwork/compaction operations.

C. Submit representative samples and Certification of Origin of each material proposed for use for fill to the Engineer for testing. Individual soil samples must contain at least 30 pounds of material. Do not use material for fill until a sample of that material has been tested and found to comply with the specification requirements.

D. Allow sufficient time during earthwork/compaction operations for the Engineer to perform the necessary field tests.

## PART 2 – PRODUCTS

2.01 EQUIPMENT

A. Use equipment compatible with the site conditions and backfill material to minimize damage to existing structures and to properly compact material.

## PART 3 - EXECUTION

3.01 PLACEMENT AND COMPACTION OF FILL AND BACKFILL

A. Follow requirements in Section 31 2323.13.

B. Place individual lifts in horizontal layers of maximum 8-inches where near existing or installed pipe or structure to prevent the thickness of lift from exceeding the specified values.

C. Maintain the moisture content of the backfill material during compaction within a range extending from 2 percent below optimum moisture content to 2 percent above optimum moisture content as determined by ASTM D1557.

D. Compact each lift to achieve the maximum dry unit weight defined in Section 31 2323.13, Soil Backfilling, as determined by ASTM D1557.

E. Do not place additional backfill until the previous lift has been tested and found to be in compliance with the specification requirements.

F. Continue filling and compaction operations to the finished levels designated on the plans, so that at completion of compaction operations, the surface of the fill is at all points within one-tenth of a foot of the specified levels.

G. Do not place backfill on frozen material.

H. Do not use frozen materials for backfill.

I. Report to the Engineer and repair any damages to existing structures or other elements caused by construction equipment to the Owner’s satisfaction and at the Contractor’s expense.

3.02 COMPACTION STANDARDS

A. The terms "maximum unit weight" and "optimum moisture content" used in these Specifications refer to those values as determined by the test strip method for materials containing more than 40 percent retained on the #4 sieve, including processed aggregates and on-site pulverized materials, and by ASTM D1557 for all other materials.

**END OF SECTION**

# SECTION 31 23 23.33

# FLOWABLE FILL

## PART 1 - GENERAL

1.01 SUMMARY

A. Section includes operations necessary to complete backfilling operations and/or utility abandonment with flowable fill materials indicated on the drawings and as specified herein.

1.02 RELATED REQUIREMENTS

A. Section 02 41 16: Removing/Abandoning Utilities and Structures

B. Section 31 22 00: Grading

C. Section 31 23 16: Excavation

D. Section 31 23 16.13: Trenching

E. Section 33 43 00 Storm Drainage

F. Other sections of the specifications also apply to the extent required for proper performance of this work.

1.03 REFERENCE STANDARDS

A. ASTM (ASTM International)

1. ASTM C138 Standard Test Method for Density (Unit Weight) Yield, and Air Content (Gravimetric) of Concrete

2. ASTM C143 Standard Test Method for Slump of Hydraulic-Cement Concrete

3. ASTM C150 Standard Specification for Portland Cement

4. ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

5. ASTM C989 Standard Specification for Slag Cement for Use in Concrete and Mortars

6. ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

1.04 SUBMITTALS

A. Submittal 31 23 23.33-01: Submit proposed flowable fill mix design to Engineer for approval.

## PART 2 - MATERIALS

2.01 CEMENT

A. Use cement conforming to ASTM C150, Type I or ASTM C150 Type I with ASTM C989 Ground Granulated Blast Furnace Slag.

2.02 FLY ASH

A. Use Class F fly ash that meets the requirements of ASTM C-618 with no limits on the loss on ignition, fineness, or detailed requirements of the specification.

B. The Manufacturer will certify, in writing that the material supplied is non-contaminated in accordance with the current Environmental Protection Agency (EPA) requirements.

C. Do not use type C fly ash without the written authorization of the Engineer.

D. Do not use flowable fill material manufactured with Type C fly ash (if approved) in any areas that will require excavation as a part of the project.

2.03 GROUND GRANULATED BLAST FURNACE SLAG

A. Use ground granulated blast furnace slag grade 100 or higher, ASTM C989, unless otherwise approved by the Engineer.

2.04 WATER

A. Use potable water or approved equivalent.

2.05 ADMIXTURE

A. DaraFill Control Low Strength Material (CLSM) Additive, by Grace Construction Products, Cambridge, MA. or an Engineer approved equivalent, may be used at the option of the Contractor in the preparation of a flowable fill mix design.

2.06 MEASURING AND MIXING

A. Stabilized Fly Ash Mixture

1. Provide mixtures containing 5% of Portland cement based on the dry weight of the fly ash. Occasional batches of the mixture with a cement content of as low as 4% will be allowed provided immediate action is taken to restore the cement content to the specified range.

2. Measure slump at the point of placement.

a. The mixture used for general backfill in trenches, against structures etc., will normally have a slump ranging between 7 and 10 inches.

b. The mixture used for back-fill that is required to stand and not flow laterally, or that which is to be used in water will normally have a slump ranging between 4 and 6 inches.

3. Mix with temperatures below 50 degrees Fahrenheit, measured at the point of placement, will not be accepted.

B. Controlled Low Strength Mixture

1. Provide mixtures containing a maximum of 100 pounds of Portland cement per cubic yard or incorporate up to a maximum of 50% substitution of ground granulated blast furnace slag for cement.

2. Prepare the mixture design in accordance with the recommendations of the CLSM Additive's manufacturer.

C. Strength Requirement

1. The mixture generally will have a specified unconfined compressive cube strength of 100 psi minimum at 28 days of age and will not exceed a maximum of 250 psi at 365 days of age (excluding Class C Fly ash)

2. In the event that the laboratory strength does not reach the required 28-day strength, the backfill material supplier must demonstrate that the required strength has been met. This may be done by the use of penetrometer, CBR laboratory test adapted to the field, or an appropriate plate load test.

## PART 3 - EXECUTION

3.01 MEASURING OF MATERIALS

A. Submit the method used to measure fly ash and cement for acceptance if a cement stabilized fly ash mixture is used.

B. Base cement content on the dry weight of the fly ash in the mix or as specified for the CLSM mixture.

C. Correct the batched weight of fly ash, if used, for its moisture content and measured in such a way that compliments the type of batch plant being utilized, thus assuring that the percentage of cement based on the dry weight of fly ash is being satisfactorily controlled.

D. Measure water, although its control will be a function of consistency (slump and workability of the mix).

E. A standard unit weight can be determined by use of a standard bucket using ASTM C138 as a guide with the exception that the material not be rodded. When weights of materials are established, the unit weight bucket along with delivery weights can be used as a basis of payment.

3.02 BATCHING AND MIXING

A. The stabilized fly ash can be mixed by a pug mill, central concrete mixer, ready-mix truck, turbine mixer, or other acceptable equipment or method.

B. Central batch the CLSM and add the CLSM Additive at the site.

C. Record the actual batch weights, mixing time, and mix temperature for each slump test and set of test specimens made.

D. Foreign material may be acceptable providing it has no deleterious effect on the mixer, placing procedure or mixture properties. Generally, occasional lumps of solid material limited to a maximum of 2 inches in diameter can be permitted.

3.03 PLACEMENT

A. Place the material by end or side dumping, chutes, conveyors, or other suitable method. Pumping, if used, must be demonstrated prior to using this method on the project site.

B. Lines and grades will be as shown on the design drawings.

C. Monitor structures for signs of uplift during the placement of the flowable fill material. If any movement is noted, immediately stop the placement of the flowable fill. Allow the flowable fill to sit for a minimum of 24-hours before resuming the placement of the flowable fill material.

D. Protect flowable fill mixtures from freezing temperatures for the initial 24 hours after placement. Protection may consist of earth cover, straw, or a sacrificial layer of the stabilized fly ash mix. Strength gain from the Portland cement will be slow with temperatures of 50 degrees Fahrenheit and lower.

E. If formwork is used to prevent flowable fill from moving during placement, do not strip formwork until flowable fill has hardened sufficiently to stand unsupported.

3.04 TESTING AND INSPECTION

A. Use the moisture content as measured by D2216 in the mixing process to provide for the moisture correction required for control of production.

B. Perform slump tests in accordance with ASTM C143. Test as required to establish slump for a new application and as a control of continuing usage.

C. Prepare a set of four 3-inch by 6-inch cylinders of CLSM or stabilized fly ash. Provide moisture cure for cylinders. Protect test specimens from freezing prior to transport to testing laboratory.

D. Protect specimens from disturbance during transport.

**END OF SECTION**

**SECTION 31 35 26.13**

**CLAY CONTAINMENT BARRIERS**

## PART 1 - GENERAL

1.01 SUMMARY

A. Section includes supply of all supervision, labor, materials and equipment, and performance of all Work necessary for the procurement, delivery, installation, and testing of the compacted clay liner, including installation as herein specified and as shown on the Drawings.

1.02 DEFINITIONS

A. Lift: Constructed segment of layer comprised of like materials spread over contiguous area prior to compaction.

B. Layer: Contiguous (compacted) stratum of material. Where comprised of several lifts, free of construction joints or lamination between lifts.

C. Compacted Clay Fill/Cap/Liner, Infiltration Layer: Low permeability compacted clay.

1.03 REFERENCES

A. American Society of Testing and Materials (ASTM):

1. ASTM C88 – Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

2. ASTM C131– Standard test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

3. ASTM D422 – Standard Test Method for Particle-Size Analysis of Soils

4. ASTM D698 – Test Method for Labor Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbs/ft)

5. ASTM D1140 – Standard Test Method for Amount of Material is Soils Finer than the No. 200 (75 Micrometer) Sieve

6. ASTM D1557 – Standard Test Method for Laboratory Compaction Characteristics for Soil Using Modified Effort (56,000 ft-lbs) (2700 kN-m/m)

7. ASTM D1587 – Standard Practice for Thin-Walled Tube Sampling of Soils

8. ASTM D2216 – Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and rock

9. ASTM D2434 – Standard Test Method for Permeability of Granular Soils (Constant Head)

10. ASTM D2435 – Standard Test Method for One-Dimensional Consolidation Properties of Soils

11. ASTM D2487 – Standard Classification for soils for Engineering Purposes (Unified Soil Classification System)

12. ASTM D2922 – Standard Test Method for Density of Soil and Soil-Aggregate in place by Nuclear Methods (Shallow Depth)

13. ASTM D3017 – Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

14. ASTM D3042 – Standard Test Method for Insoluble Residue in Carbonate Aggregates

15. ASTM D4318 – Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

16. ASTM D5084 – Standard Test Method for Measurement of Hydraulic Conductivity of Saturates Porous Materials Using a Flexible Wall Permeameter

17. ASTM D2850 – Standard Test Method for Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression

18. ADTM D3080 – Standard Method for Direct Shear Test of Soils Under Consolidated Drained Conditions

1.04 QUALITY ASSURANCE

A. Quality assurance and quality control will be performed in accordance with these specifications and administered by Owner's designated representative and applicable EGLE regulations.

1.05 PROJECT/SITE CONDITIONS

A. Do not block or obstruct roads, streets or pavements with excavated materials, except as authorized by Owner. Maintain soil stockpiles only within areas authorized by Owner.

B. Schedule work in coordinated effort with Owner and Owner's designated representatives, including, but not limited to, engineering inspection and certification.

1.06 CLAY FILL PRE-CONSTRUCTION TESTING REQUIREMENTS

A. Contractor requirements:

1. Provide Owner's designated representative with a written method statement describing the soil liner installation procedures.

2. Request notice requirements for Owner's representative regarding necessary timeframe to schedule mobilization of staff to provide required support, as directed by Owner's designated representative, prior to liner construction. Contractor to provide test samples from borrow locations as required by and for Owner's designated representative to perform pre-construction testing (environmental conformance, permeability testing, moisture-density relationship, etc.), and to allow Owner's representative time to schedule availability of soil and environmental labs for testing.

B. Requirements of Owner's designated representative:

1. Notify Contractor in pre-construction meeting of minimum timeframe required to provide necessary pre-construction testing to prevent construction delays.

2. Schedule and confirm reserved times with Owner-approved testing laboratories, providing laboratory with estimated quantities of tests and probable schedule for sample deliveries, based upon Contractor's construction schedule.

3. Notify Contractor and Owner immediately if delays are anticipated, and of test failures.

4. Notify Contractor of material suitability/unsuitability for work.

## PART 2 - PRODUCTS

2.01 LINER QUALITY SOIL

A. Soil Classification: ML, SC, CH or CL (or combination), by Unified Soil Classification System in accordance with ASTM D2487.

B. Permeability: $1.0 \times 10^{-7}$ cm/sec or less (in-place) by ASTM D5084 with EGLE modifications.

C. Compaction: 90% modified Proctor density or greater, as determined by ASTM D1557 and as necessary to meet specified permeability.

D. Moisture: Compacted-in-place moisture content: 0% to +5% wet of optimum or as required to obtain minimum permeability requirement.

## PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

A. Proof-roll subgrade surfaces to provide smooth surfaces prior to placement of soil liner.

B. Submit detailed written work plans describing methodologies for performing all work-related items.

3.02 PLACEMENT OF LINER QUALITY SOIL

A. Do not place soil liner material that has not been pre-qualified.

B. Place soil in accordance with the following:

1. Leave roughened or scarify each preceding lift to a typical depth of 1 inch to not more than 3 inches prior to successive lift placement.

2. Maximum Loose Lift Thickness: 12 inches, including scarified or roughened depth of previous lift, or as necessary for an 8-inch maximum compacted lift thickness.

3. Maximum Compacted Lift Thickness: 8 inches or depth of foot or tooth on compactor used, whichever is less.

4. Minimum Completed Soil Liner Thickness: 2 feet

5. Maximum Rock Size: 3 inches.

6. Maximum Soil Clod Size Prior to Compaction: 4 inches.

7. Allowable Soil Moisture Content Range: 0% to +5% wet of optimum.

8. Minimum Soil Compaction: 90% of maximum dry density as determined by the modified Proctor ASTM D1557 as necessary to meet specified permeability.

9. Maximum Soil Permeability: $1.0 \times 10^{-7}$ cm/sec (in place), as determined by ASTM D5084.

C. Material distribution and gradation throughout soil liner to remain free from lenses, pockets, streaks, or sections of material differing substantially in texture or gradation from pre-qualified liner material for which prior source testing has been performed. Separate tests are required for each material type as determined by Owner's designated representative.

D. Place lifts of soil to form one continuous monolithic layer of material. Ensure previous lift is moist and scarify surface of previously placed lifts with disc or other piece of machinery capable of penetrating into previous lift to minimum 1-inch depth or leave previous lift roughened to provide proper bonding between subsequent lifts of soil liner. Place soils on slopes in a downslope to upslope fashion.

E. Do not place soil below ambient air temperature of 32º F, unless approved by Owner's designated representative. Inspect material to ensure that it is free of ice, snow, or frozen material when weather conditions warrant.

F. Control lift thickness using laser-guided equipment or other method approved prior to construction by Owner's designated representative to ensure requirements of the Specifications are met. Owner prefers the use of laser-guided equipment for this construction. No stakes or hubs are to remain in the soil liner. Contractor should reiterate the removal of damaged stakes to work crew during daily assignments, if Contractor utilizes grade stakes.

G. Minimum soil layer thickness will be verified and documented by Owner's designated representative. Rework or remove and replace portions of soil layer not meeting Specification requirements. Slope must be maintained between any two points of measurement.

H. Break down soil clods larger than specified maximum in any direction to less than or equivalent to specified maximum prior to lift compaction.

I. Compact each lift with sheepsfoot roller, or similar kneading-type compactor with minimum 8-inch protruding pads, with a minimum of three (3) passes per acre per lift. Fill footed rollers towed behind a dozer with liquid to ensure sufficient compactive effort is exerted to liner (minimum static load of 45,000 pounds). Fill sheetsfoot indentations for top lift of compacted clay with additional clay and compact with heavy dozers, or similar equipment. No pumping or excessive rutting of any lift surface is permitted. Any material which, in the opinion of the Owner's designated representative, exhibits pumping, or excessive rutting will be removed, or reworked and replaced.

J. Avoid creating construction joints in soil liner. Where construction joints are necessary (such as tie-in with existing clay soils), keying segments of soil liner together with “stair-step” techniques is required unless otherwise indicated on the Drawings. Method of keying to be approved by Owner's designated representative prior to keying efforts.

K. Minimize damage to soil liner due to rainfall. Precautions include, but are not limited to, grading surface to promote runoff, back-blading with dozer, sealing surface with smooth drum roller or other means. Take precautions each night prior to anticipated rainfall event but are generally recommended each night. Augment precautions by placing pump(s) in area(s) likely to collect water. Provide, maintain, and operate pumps; coordinate access to site with Owner's designated representative or Owner.

L. Remove ice and snow during cold weather construction prior to placing lift. Do not use frozen soil in soil liner.

M. Re-compact or rework and retest soil that fails field testing or has been impacted by freeze-thaw cycles during construction activity. Re-compact or rework soil area following a failed test to boundaries of passing test results.

N. The compacted soil liner construction will be field verified by the Owner's designated representative by performing the following quality control tests:

1. The field density/ moisture of the liner immediately after compaction, as specified by ASTM D2922/D3017, at a minimum frequency of one (1) test per acre per lift of construction, but not less than three (3) tests per day. Stagger and rotate the location of the tests with each lift (a minimum of 10 feet horizontal spacing) to maximize the coverage of tests. Backfill test penetrations with granular bentonite.

2. The following testing will be performed at a frequency of one (1) test per 5,000 cubic yards of liner placed or change in borrow source to verify the consistency of the material source: Modified Proctor Density, Atterberg Limits, and Soil Classification/ Grain Size Distribution.

3. The undisturbed hydraulic conductivity of a soil sample, for every 10,000 cubic yards of liner placed or a minimum of three (3) tests per construction project in accordance with ASTM D5084 with EGLE modifications. Backfill test penetrations with granular bentonite and/or compacted clay.

O. Maintain soil liner surface until final acceptance by the Owner. Includes reworking or removing and replacing portions of soil liner softened or tracked by runoff due to rainfall or otherwise determined to be unfit for vegetative growth installation.

P. Submit detailed written work plans describing methodologies for performing all work-related items.

## 3.03 MOISTURE CONTENT OF COMPACTED CLAY LINER MATERIALS

A. Uniformly distribute moisture content of soil material prior to and during compaction throughout each lift of material as necessary to meet moisture requirements. Adjust soil/clay liner material determined by Owner's designated representative to contain moisture outside specified range to provide material within specified range. Adjustment includes, but is not limited to, drying materials containing moisture in excess of specified range and adding water to materials containing moisture less than specified range. Contractor must use a disk, or other equipment approved by Owner, to evenly distribute moisture throughout the soil lift, and provide proper bonding between soil lifts. Additional payment will not be made to Contractor for adjusting moisture content of materials for use in soil liner.

B. Maintain moisture content of soil/clay liner materials in previously placed lifts within specified range. Avoid excessive drying and desiccation cracking of materials. Maintenance includes, but is not limited to, wetting surface of previously placed lifts to avoid excessive drying and desiccation cracking of material. Prior to placement and compaction of subsequent lifts of soil material, Owner's designated representative will verify moisture content of scarified material of previously placed lift is within specified limits. Adjust previously placed materials determined to possess moisture content outside specified limits, as previously specified, and recheck before subsequent lift placed.

C. After soil layer or portion thereof is complete, continue to maintain soil liner surface in moist condition, free of desiccation cracks until accepted for vegetative growth placement.

D. Submit detailed written work plans describing methodologies for performing all work-related items.

3.04 FIELD QUALITY CONTROL

A. Notify Owner's designated representative when portions of clay liner are ready for testing.

B. Provide Owner's designated representative with construction equipment, and labor necessary for completion of field testing. (Example: blading of areas for density test or pushing Shelby tubes for permeability testing in re-compacted soil liner.)

C. Place clay liner soils to elevations as shown on the plan to within minus 0.0 foot to plus 0.2 foot from required elevations. The clay liner soils thickness must meet the minimum 2-foot thickness as indicated on the plan.

**END OF SECTION**

**SECTION 31 35 26.18**

**GEOTEXTILE**

## PART 1 – GENERAL

1.01 SCOPE OF WORK

A. This Section includes furnishing and installation of geotextile as a filter/separation layer.

1.02 REFERENCES

A. ASTM International (ASTM)
1. ASTM D4873 Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples

B. American Association of State Highway and Transportation Officials (AASHTO)
1. AASHTO M288 Standard Specification for Geosynthetic Specification for Highway Applications

C. Michigan Department of Transportation (MDOT)
1. MDOT 2020 Standard Specifications for Construction, Section 910 Geosynthetics

1.03 SUBMITTALS

A. See applicable Specification for submittal procedures.

B. Submit geotextile samples and list of minimum property values. Materials properties are to be in conformance with those defined in Part 2.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver only approved geotextile rolls to the project site. Label, ship, store, and handle all geotextile in accordance with ASTM D4873. No hooks, tongs, or other sharp instruments are to be used for handling geotextile.

## PART 2 – PRODUCTS

2.01 GEOTEXTILE

A. The geotextile is to be comprised of polyester or polypropylene. Provide minimum 8 oz/ sq. yard nonwoven needle-punched geotextile meeting the requirements listed in MDOT 910.03C for Geotextile Separator.

## PART 3 – EXECUTION

3.01 INSTALLATION

A. Handling of all geotextiles by the Installer in such a manner as to ensure it is not damaged in any way.

B. At the time of installation, reject the geotextile if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.

C. Place the geotextile with the machine direction parallel to direction of water flow centerline and lay smooth, free of tension, stress, folds, wrinkles, or creases.

D. The geotextile is to be placed to provide a minimum width of 12 inches of overlap between adjoining panels.

E. Temporarily secure the geotextile in place until the backfill/ riprap is placed.

F. Move or remove sandbags, stones, or other securing devices as the backfill/ riprap is placed to relieve high tensile stress which may occur during placement of material on the geotextile.

G. Protect the geotextile from damage prior to and during the placement of backfill/drainage materials.

H. Perform trimming in such a manner that the geotextile is not damaged in any way.

I. Protect the geotextile at all times from contamination with sediment; any geotextile so contaminated is to be removed and replaced with uncontaminated geotextile.

J. Geotextile damaged during installation or during placement of backfill/drainage material is to be replaced by the Contractor at no additional cost to the Owner.

K. Schedule the work so that covering of the geotextile with backfill/drainage material is accomplished within one (1) calendar day after placement of the geotextile. Failure to comply will require replacement of the geotextile.

L. Before placement of the backfill/drainage material, demonstrate that the placement technique will not cause damage to the geotextile.

M. In no case will any type of equipment be allowed directly on the unprotected geotextile.

N. The overlap seam of the geotextile is to be overlapped or heat bonded.

**END OF SECTION**

# SECTION 32 11 23

# AGGREGATE BASE AND SURFACE COURSES

## PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, materials, supervision, and incidentals necessary to complete the removal of existing aggregate base, as needed, and surface courses as directed by the Engineer and install new aggregate base and surface courses as directed by the Engineer.

1.02 REFERENCES

A. ASTM Standard D98, "Standard Specification for Calcium Chloride," ASTM International.

B. ASTM Standard C136, "Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates," ASTM International.

C. ASTM Standard D1557, "Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft$^3$ (2,700 kN-m/m$^3$))," ASTM International.

D. ASTM Standard D6938, "Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)," ASTM International.

E. "2020 Standard Specifications for Construction," Michigan Department of Transportation (MDOT).

1.03 SUBMITTALS

A. See Section 01 30 00 for submittal procedures.

B. Materials Sources: Submit name(s) of imported materials source(s).

C. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

D. Product data and samples of proposed geotextile fabrics.

1.04 PROJECT CONDITIONS

A. Provide sufficient quantities of aggregate to meet project schedule and requirements. When necessary, store materials on site in approved areas in advance of need.

B. When aggregate materials need to be stored on site, locate stockpiles where indicated.

1. Separate differing materials with dividers or stockpile separately to prevent intermixing.

2. Prevent contamination.

3. Protect stockpiles from erosion and deterioration of materials.

4. Stockpile to permit removal of materials with uniform gradation.

5. Do not permit stockpiles to exceed four feet in depth on the complete subbase or aggregate surface.

C. Verify that survey benchmarks and intended elevations for the Work are as indicated.

1.05 ENVIRONMENTAL CONDITIONS

A. Do not place aggregate materials when there are indications that they may become frozen before the maximum unit weight is obtained.

B. Do not place aggregate on a frozen subgrade or base course, unless otherwise directed by the Engineer.

## PART 2 – PRODUCTS

2.01 MATERIALS

A. Fine Aggregate for Subbase: MDOT 902.07 Class II.

B. Dense Graded Aggregate for Base: MDOT 902.05 - MDOT 21AA crushed natural aggregate only.

C. Graded Aggregate for Sanitary and Storm Pipe Bedding: MDOT 902.07 - MDOT 6AA crushed natural aggregate only.

D. Graded Aggregate for Detention Pond Backfill: MDOT 902.06 - MDOT 6A crushed natural aggregate only.

E. Geotextile Separator Fabric: MDOT 910.03 C, with the physical properties described in MDOT Table 910-1; unless otherwise shown on the Drawings.

F. Geotextile Stabilizing Fabric: MDOT 910.03 D, with the physical properties described in MDOT Table 910-1; at soft soils where shown on the Drawings or encountered in the field.

G. Water: Clean and free from substances injurious to the finished product. Water from sources approved by the Michigan State Department of Public Health as potable may be used.

H. Calcium Chloride Admixtures are only permitted when approved in advance by the Engineer; Conform to ASTM D98 and MDOT 903.02.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for testing and analysis of aggregate materials.

B. If tests indicate materials do not meet specified requirements, change material and retest.

C. Provide materials of each type from same source throughout the Work.

## PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify substrate has been inspected, grades and elevations are correct, and substrate is dry.

B. Verify locations of existing improvements, including structures, against which the new work will be placed. Obtain Engineer's approval of adjustments in the line and grade, if necessary, to align the new work with the existing improvements.

C. Existing Base: Prior to placing aggregate material for surfacing, examine the existing base for grade and condition; verify that it is adequately compacted to receive the aggregate surfacing. Correct defects and deficiencies before proceeding with the Work.

3.02 PREPARATION

A. Correct irregularities in substrate grades and elevation by scarifying, reshaping, and re-compacting.

B. Do not place aggregate on soft, muddy, or frozen surfaces.

C. If the subgrade or subbase remains wet after surface water has been removed, the Engineer may require installation of an edge drain based upon site and soil conditions.

D. Do not proceed with placement of aggregate material until the subgrade, subbase, or existing aggregate surface has been approved by the Engineer.

E. Place the geotextile fabric, if required, on the subgrade in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. Comply with MDOT 302.03.

B. Under Concrete and Asphalt Paving:

1. Place aggregate base to a total compacted thickness as shown on the Drawings.

2. Compact aggregate base to 95 percent of maximum dry density.

C. Place aggregate in maximum 6-inch layers and roller compact to specified density.

D. Level and contour surfaces to elevations and gradients indicated.

E. Add water to assist compaction.

F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.04 TOLERANCES

A. Flatness: Maximum variation of 1/2 inch measured with 10-foot straight edge.

B. Scheduled Compacted Thickness: Within 1/4 inch.

C. Variation from Design Elevation: Within 1/2 inch.

3.05 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.

B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D6938 at a rate of one measurement per each 600 square yards.

C. Moisture content testing will be performed on compacted aggregate base course in accordance with ASTM D 6938 at a rate of one measurement per each 600 square yards.

D. Locations of test measurements will be determined at the discretion of the Engineer.

E. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D1557 ("Modified Proctor").

F. If tests indicate Work does not meet specified requirements, adjust moisture content, recompact, and retest. If specified density still cannot be achieved, verify that the proper moisture density information is being used for the material and reevaluate test results if warranted. Otherwise remove, replace, and recompact the material.

G. Proof roll compacted aggregate at surfaces that will be under paving and repair, if necessary, at Contractor's expense.

3.06 CLEAN UP

A. Remove unused stockpiled materials and leave area in a clean and neat condition. Grade the stockpile area to prevent standing surface water.

B. Leave the Site in a clean and neat condition. Grade the Site to prevent standing surface water.

**END OF SECTION**

# SECTION 32 12 13

# BOND COATS

## PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Bond Coats (sometimes referred to as Tack Coats).

1.02 REFERENCES

A. 2020 Standard Specifications for Construction; Michigan Department of Transportation (MDOT), Section 501 and 904.

1.03 SUBMITTALS

A. See applicable Specification for submittal procedures.

B. Materials Sources: Submit name and grades of Bond Coat along with source and MDOT acceptance.

C. Product data on proposed Bond Coat including MDOT approved grades for seasonal use.

1.04 PROJECT CONDITIONS

A. Provide sufficient quantities of Bond Coat to meet project schedule and requirements.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Bond Coat: MDOT specified asphalt emulsion for Bond Coat in HMA paving; SS-1h or CSS-1h. See Section 501 Plant Produced Hot Mix Asphalt and Section 904 Asphaltic Materials.

2.02 SOURCE QUALITY CONTROL

A. Submit documentation that Bond Coat is approved for use by MDOT.

B. If tests indicate materials do not meet specified requirements, change material and retest.

C. Provide materials of each type from same source throughout the Work.

## PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that HMA base or leveling course has been inspected, grades and elevations are correct and approved for placement of leveling or top course of asphalt.

3.02 PREPARATION

A. Do not place Bond Coat on heavily soiled and/or muddy base course.

B. Clean base course to an acceptable condition approved by the Engineer prior to placement of Bond Coat.

3.03 INSTALLATION

A. Comply with MDOT Bond Coat, SS-1h, CSS-1h.

3.04 TOLERANCES

A. Comply with MDOT Section 904

3.05 CLEAN-UP

A. Leave area in a clean and neat condition.

**END OF SECTION**

# SECTION 32 12 16

# ASPHALT PAVING

## PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, materials, supervision, and incidentals necessary to complete the installation of bituminous asphalt paving.

1.02 REFERENCES

A. ASTM Standard C131, “Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine,” ASTM International.

B. ASTM D244, “Standard Test Methods and Practices for Emulsified Asphalts,” ASTM International.

C. ASTM D692, “Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures,” ASTM International.

D. ASTM Standard D946, “Standard Specification for Penetration-Graded Asphalt Binder for Use in Pavement Construction,” ASTM International.

E. ASTM Standard D1073, “Standard Specification for Fine Aggregate for Bituminous Paving Mixtures,” ASTM International.

F. ASTM Standard D2026, “Standard Specification for Cutback Asphalt (Slow-Curing Type),” ASTM International.

G. ASTM Standard D2027, “Standard Specification for Cutback Asphalt (Medium-Curing Type),” ASTM International.

H. ASTM Standard D2028, “Standard Specification for Cutback Asphalt (Rapid-Curing Type),” ASTM International.

I. ASTM Standard D4125, “Standard Test Methods for Asphalt Content of Bituminous Mixtures by the Nuclear Method,” ASTM International.

J. ASTM Standard D6927, “Standard Test method For Marshall Stability and Flow of Asphalt Mixtures,” ASTM International.

K. “2020 Standard Specifications for Construction,” Michigan Department of Transportation (MDOT).

L. MTM Method 118, “Michigan Test Method for Measuring Fine Aggregate Angularity,” Manual for the Michigan Test Methods, MDOT.

1.03 SUBMITTALS

A. Provide certification that the materials used conform to the standards specified in this Section.

B. Prior to beginning the Work, submit a certified copy of proposed mix design for each type of bituminous mixture used on this Project.

C. Submit certified batch plant delivery ticket prior to placing each load of materials.

1.04 QUALITY ASSURANCE

A. Comply with MDOT construction specifications, latest edition, unless specified otherwise herein.

B. Obtain materials from same source throughout construction.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not place asphalt when precipitation is falling or surface is wet or frozen.

B. Comply with MDOT 501.03 I for weather and seasonal limitations on placement.

**PART 2 - PRODUCTS**

2.01 MATERIALS

A. Aggregate for Base Courses, see Section 32 11 23.

B. Blended Aggregate for Hot-Mixed Asphalt (HMA)

1. Coarse aggregate complying with ASTM D692 and MDOT 902.09.

2. Fine aggregate complying with ASTM D1073 and MDOT 902.09.

3. Provide aggregate blend that conforms to the applicable requirements of MDOT for the mix designs shown on the drawings.

C. Fine Aggregate for HMA Surface Treatments: MDOT 902.10.

D. Asphaltic Binder: MDOT 904.

E. Mineral Filler: MDOT 902.11.

F. Anti-Foaming Agents: MDOT 904.03A.

G. Cut-Back Asphalt: MDOT 904.03B and ASTM D 2026, ASTM D 2027, or ASTM D2028.

H. Emulsified Asphalt: MDOT 904.03C and ASTM D244.

I. Prime Coat and Bond Coat: Homogeneous, medium curing, liquid asphalt.

J. Use of Reclaimed Asphalt Pavement (RAP) is permitted up to 25% by binder weight.

2.02 EQUIPMENT

A. Comply with MDOT 502.03A.

B. General: Comply with MDOT 501, unless otherwise approved by Owner's Representative.

C. Combine aggregates, mineral filler (if required), and asphalt binder to produce a hot-mixed asphalt (HMA) that complies with MDOT HMA Selection Guide. Refer to the project drawings for proposed MDOT HMA mixes.

D. Provide a mixture that meets the requirements for the MDOT mixtures specified when tested at optimum asphalt content in accordance with ASTM D4125.

E. If the source of any of the aggregate changes, submit and test new mixtures for compliance.

F. Base mixture proportions on the composite samples of aggregate and the bituminous material shown on the Drawings.

2.03 SOURCE QUALITY CONTROL

A. Test mix design and samples to verify conformance with MDOT Special Provision for Marshall Hot Mix Asphalt Mixture (03SP501) and/or MDOT Special Provision for Superpave Final Aggregate Blend Requirements (12SP-902E-04).

B. Maintain uniform gradation of aggregate placed in the cold feed bins so that the combination of aggregates produced by blending the aggregate from two or more cold feed bins will be uniformly fed into the HMA.

1. Use adjustable feeders on the belt that supplies the asphalt plant.

2. Equip feeders with cutoffs that will automatically stop the operations to the asphalt plant whenever the flow of any aggregate fraction is changed so as to affect the uniformity of the finished product.

3. Hot bins may be used for proportioning of the aggregates to meet the specified tolerances.

C. After the job-mix formula (JMF) is accepted by the Engineer, maintain the bituminous mixture within the tolerance limits established by the applicable MDOT Special Provisions.

## PART 3 - EXECUTION

### 3.01 EXAMINATION AND PREPARATION

A. Verify that compacted subgrade is dry, not frozen and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

C. Obtain Owner's Representative acceptance of the density, grade and cross-section of the aggregate base prior to placing bituminous base course mixtures directly on the aggregate base.

### 3.02 BASE COURSE

A. Preparation of Aggregate Base Course: Section 32 11 23 - Aggregate Base and Surface Courses.

### 3.03 INSTALLATION – GENERAL

A. Provide curb drops for sidewalk ramps at street intersections, and for driveway approaches and sidewalks at locations shown on the drawings or where determined by Owner's Representative. Provide curb drops that comply with Act 8 of Michigan PA 1973, "Sidewalks; Persons with Disabilities," as amended.

B. Protect existing improvements, including structures, to prevent their surfaces from becoming discolored during application of bituminous materials.

### 3.04 PREPARATION - PRIME COAT

A. Ensure that the aggregate base or subbase to be primed is free from moisture when the treatment is applied.

B. Apply prime coat on aggregate base by means of a pressure distributor. Hand spraying apparatus may be used to distribute the prime coat only in areas that are inaccessible to the pressure distributor operation.

C. Apply prime coat at a rate between 0.05 and 0.10 gallons per square yard (225 to 450 ml/$m^2$), or as recommended by the Owner's Representative.

D. Do not permit pools of bituminous material to remain on the surface.

E. Permit the prime coat to properly cure before placing HMA. Do not use aggregate to blot excess primer in lieu of proper curing.

3.05 PREPARATION - BOND COAT

A. Treat each layer of bituminous mixture with bituminous material before placing the succeeding layer.

B. Apply bond coat on paving by means of a pressure distributor. Hand spraying apparatus may be used to distribute the prime coat only in areas that are inaccessible to the pressure distributor operation.

C. Apply bond coat at a rate between 0.025 and 0.05 gallons per square yard (112 to 225 ml/$m^2$), or as recommended by the Engineer.

D. Do not permit pools of bituminous material to remain on the surface.

E. Apply prime coat ahead of the paving operation for a distance of at least 140 feet (43 m), subject to space limitations and as recommended by Owner's Representative.

F. Permit the bond coat to properly cure before placing HMA. Do not use aggregate to blot excess primer in lieu of proper curing.

G. Coat surfaces of manhole frames with oil prior to bond coat placement in the vicinity of the manhole frames to prevent bond with asphalt pavement. Do not bond coat these surfaces.

3.06 TRANSPORTING AND PLACING ASPHALT PAVEMENT

A. Transport mixtures in accordance with MDOT 501.03 E.

B. Place HMA in accordance with MDOT 501.03 F.

C. Roll and compact HMA in accordance with MDOT 501.03 G.

D. Heating Bituminous Materials

1. Ensure uniform temperature throughout the entire mass of bituminous material that require heating before application, as directed by the Engineer, by using efficient and positive control at all times.

2. Heat bituminous materials to a temperature that is consistent with the type of material used and only to such temperature as required to achieve the necessary fluidity. Avoid excessively high temperatures.

3. Provide a thermometer to enable the Engineer to observe the temperature at any time. Bituminous material that has been overheated will be rejected.

4. Circulate asphalt emulsion continuously when heated above atmospheric temperature so as to prevent it from separating.

5. Heat asphalt emulsion to the required temperature for application in the distributor unless a circulating heater is used in the storage tank to maintain uniform temperature.

6. Asphalt emulsion that has been damaged by continuous heating for too long a time or by alternate heating and cooling will be rejected.

## 3.07 TOLERANCES

A. Measure smoothness requirements of base courses and HMA courses in accordance with MDOT 501.03 H for longitudinal, transverse, and diagonal directions.

B. Compacted Thickness: Within 1/4 inch of specified or indicated total pavement thickness.

C. Variation from True Elevation: Within 1/4 inch.

D. If these criteria are not met, the resulting low area (aka “bird bath”) shall be corrected by milling and overlaying or complete removal and replacement of the affected areas. Surface patching is not acceptable.

## 3.08 FIELD QUALITY CONTROL

A. General: Comply with MDOT for testing procedures and Section 01 40 00 for quality requirements.

1. Aggregate gradation tests will be performed on aggregate extracted from samples of bituminous mixture taken from the trucks as directed by the Engineer.

2. Samples will be taken at the start of production and at other times when tests indicate that the aggregate gradation is fluctuating. At these times, truck samples will be taken at a frequency of one sample per 250 tons (225 metric tons) of mixture, but not more than four samples per day.

3. During periods when tests indicate the aggregate gradation is stable, truck samples will be taken at a frequency of one sample per 500 tons (450 metric tons) of mixture, but no more than two samples per day.

B. Mixtures that exceed the permitted deviations listed in the MDOT Special Provisions will be rejected and the Contractor shall be required to remove and replace bituminous pavement that were determined by the Owner's Representative to be constructed with mixtures that exceeded the permitted deviations.

C. Roll HMA until the required compaction is attained. Base the required amount of rolling on test results of a nuclear gage or on using a specified minimum number of rollers. When the total tonnage for the Project is in excess of 1,000 tons (900 metric tons), use the nuclear gage method to govern compaction requirements.

D. Determine the control density for the bituminous mixture to be placed by using the modified Marshall Test in accordance with ASTM D 6927.

3.09 PROTECTION AND CLEAN-UP

A. Immediately after placement, protect pavement from mechanical injury until surface temperature is less than 140 degrees F.

B. Backfill the area adjacent to the new Work with sound earth of topsoil quality. Comply with Section 31 22 00 – Grading.

C. Leave backfill compacted, leveled to achieve positive drainage and in a neat, workmanlike condition.

D. At a seasonally correct time, rake the disturbed area, place topsoil thereon, and restore the area.

**END OF SECTION**

# SECTION 32 13 13

# CONCRETE PAVEMENT

## PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, materials, supervision, and incidentals necessary to complete the construction of concrete pavement for sidewalks, guardrail foundations, curbs, gutters, parking areas, roads/drives, concrete box-outs, and all other incidental concrete shown on the plans.

B. Furnish all materials, including dowels, tie bars and joint materials; and furnish all equipment, tools, labor, and work incidental to placing, curing, and protection of the concrete; and construct the pavement complete.

1.02 REFERENCES

A. ASTM International:

1. ASTM C31, “Practice for Making and Curing Concrete Test Specimens in the Field”

2. ASTM C33, “Standard Specification for Concrete Aggregates

3. ASTM C39, “Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens”

4. ASTM C94, “Standard Specification for Ready-Mixed Concrete”

5. ASTM C109, “Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)”

6. ASTM C114, “Standard Test Method for Chemical Analysis of Hydraulic Cement”

7. ASTM C138, “Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete”

8. ASTM C143, “Standard Test Method for Slump of Hydraulic-Cement Concrete”

9. ASTM C150, “Standard Specification for Portland Cement”

10. ASTM C172, “Standard Method of Sampling Freshly Mixed Concrete”

11. ASTM C173, “Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method”

12. ASTM C231, “Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method”

13. ASTM C260, “Standard Specification for Air-Entraining Admixtures for Concrete”

14. ASTM C309, “Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete”

15. ASTM C311, “Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete”

16. ASTM C457, “Standard Test Method for Microscopical Determination of Parameters of the Air-Void System in Hardened Concrete”

17. ASTM C494, “Standard Specification for Chemical Admixtures for Concrete”

18. ASTM C595, “Standard Specification for Blended Hydraulic Cements”

19. ASTM C618, “Standard Specification for Coal Fly Ash or Calcined Natural Pozzolan for Use in Concrete”

20. ASTM C685, “Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing”

21. ASTM C823, “Standard Practice for Examination and Sampling of Hardened Concrete in Construction”

22. ASTM C856, “Standard Practice for Petrographic Examination of Hardened Concrete”

23. ASTM C989, “Standard Specification for Slag Cement in Use in Concrete and Mortars”

24. ASTM C1077, “Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation”

25. ASTM Standard C1116, “Standard Specification for Fiber-Reinforced Concrete”

26. ASTM C1157, “Standard Performance Specification for Hydraulic Cement”

27. ASTM C1222, “Standard Practice for Evaluation of Laboratories Testing Hydraulic Cement”

28. ASTM C1240, “Standard Specification for Silica Fume Used in Cementitious Mixtures”

29. ASTM C1260, “Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)”

30. ASTM C1293, “Standard Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction”

31. ASTM C1567, “Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Test)”

32. ASTM D98, “Standard Specification for Calcium Chloride”

33. ASTM D994, “Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)”

34. ASTM D1751, “Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)”

35. ASTM D5249, “Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints”

36. ASTM D6690, “Standard Specification for Joint and Crack Sealants, Hot-Applied, for Concrete and Asphalt Pavements”

B. Michigan Department of Transportation (MDOT): 2020 Standard Specifications for Construction

C. American Concrete Institute (ACI):

1. ACI 117.1 “Guide for Tolerance Compatibility in Concrete Construction

2. ACI 201, “Guide to Durable Concrete”

3. ACI 211.1, “Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete”

4. ACI 301, “Specifications for Structural Concrete”

5. ACI 304R, “Guide for Measuring, Mixing, Transporting, and Placing Concrete”

6. ACI 305R, “Guide to Hot Weather Concreting”

7. ACI 306R, “Guide to Cold Weather Concreting”

D. Metric Conversions:

| Inch-pound unit | Factor | SI unit |
|---|---|---|
| in. | x 25.4 | = mm |
| $lb/yd^3$ | x 0.5933 | = $Kg/m^3$ |
| psi | x 0.006895 | = Mpa |
| temperature, °F | (°F - 32)/1.8 | = °C |

1.03 SUBMITTALS

A. Provide the following information in initial submittals: Whenever material sources or relevant properties of the materials change, provide a re-submittal of the relevant information, demonstrating compliance with the applicable provisions.

1. List of sources for materials.

2. Material certifications for each material.

3. Product data for curing compound, including installation instructions, joint filler, and admixtures.

4. Proposed concrete mix design in accordance with ACI 301.

5. Contractor’s quality control plan.

B. Submit the concrete mix design to the Engineer a minimum of ten (10) business days prior to placing concrete. Develop proportions for normal weight concrete mixtures in accordance with ACI 211.1 to meet the requirements of ACI 301. Include the following information for each concrete mix design:

1. Grading of fine and coarse aggregates

2. Proportions of all ingredients including admixtures added either at the time of batching or at the job site

3. Water/cement ratio

4. Slump

5. Air content of freshly mixed concrete by the pressure method

6. Unit weight of concrete

7. Strength at 7 and 28 days

8. Chloride content

9. Total alkali content of the cementitious materials

10. Test results, not more than 1 year old that verify the selected materials and relative proportions are adequate to mitigate the risk of alkali-silica reactivity, as required by Article 2.02 G.

C. Laboratory Qualifications: For each laboratory that supplies test reports or data required by this specification, provide evidence that the laboratory is properly equipped and qualified, in accordance with ASTM C 1077 and C 1222, to perform the tests method(s) on which they are reporting.

D. Samples: Submit representative samples of the following products and materials:

1. Fine aggregate

2. Coarse aggregate

3. Expansion joint filler

4. Contraction joint filler

5. Hot-poured joint sealant

6. Backer rod

E. If work will be performed during cold weather conditions, submit detailed procedures for production, transportation, placement, protection, curing, and temperature monitoring of concrete during cold weather. In the submittal, include procedures to be implemented upon abrupt changes in weather conditions or equipment failures.

F. If work will be performed during hot weather conditions, submit detailed procedures for production, transportation, placement, protection, curing, and temperature monitoring of concrete during hot weather. In the submittal, include procedures to be implemented upon abrupt changes in weather conditions or equipment failures.

## 1.04 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Provide Owner's quality control testing agency with access to stockpiles, quarries, bulk storage bins, ready-mix facility, etc. for the purpose of obtaining samples of materials used in the concrete mix.

1. Furnish labor to assist testing agency in obtaining and handling samples at the job site.

2. Advise testing agency in advance (minimum of 48 hours) of operations to allow for the assignment of testing personnel and testing.

3. Provide and maintain adequate facilities for the use of the testing agency for proper curing of concrete test specimens on the project site in accordance with "Standard Method of Making and Curing Concrete Test Specimens in the Field," ASTM C31.

C. Materials and operations will be tested and inspected as work progresses. Failure to detect defective work shall not prevent rejection when defect is discovered, nor shall it obligate the Owner for final acceptance.

D. The following testing services will be performed by a third-party testing agency, as designated and compensated by the Owner:

1. For each mix design, make one strength test for each 100 cubic yards or fraction thereof of concrete placed in any one day.

2. Secure composite samples in accordance with "Standard Method of Sampling Freshly Mixed Concrete", ASTM C172.

3. For each required strength test, mold and cure six (6) specimens in accordance with "Standard Method of Making and Curing Concrete Test Specimens in the Field", ASTM C31.

4. Test specimens in accordance with "Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens", ASTM C39. Two specimens will be tested at 28 days for acceptance, one tested at 7 and 14 days for information and two retained as spares.

5. For each strength test, determine slump of concrete sample in accordance with "Standard Test Method for Slump of Portland Cement Concrete", ASTM C143.

6. For each strength test, determine total air content of concrete sample in accordance with "Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method", ASTM D231.

7. For each strength test, determine temperature, unit weight, yield and air content (gravimetric) of concrete sample in compliance with ASTM C138, "Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete".

E. If test results indicate deficient compressive strength, a negative pay adjustment in the unit price of concrete pavement shall be made in accordance with Article 1.01.C.

F. Delivered concrete may be rejected at the job site prior to placement due to any of the following:

1. Concrete fails to conform to submitted and approved concrete mix design.

2. Failure of concrete samples obtained from the first or middle portion of the delivered concrete load to meet required concrete qualities outlined in Article 2.02.

3. Placement of the delivered concrete load did not begin within 45 minutes from ready-mix concrete plant batch time.

4. More than 90 minutes have elapsed between ready-mix concrete plant batch time and concrete placement.

## 1.05 PROJECT CONDITIONS

A. Environmental Requirements

1. Cold Weather Concreting: Comply with ACI 306R and the following:

a. Do not use admixtures or accelerators unless approved in advance by the Engineer.

b. Protect the subgrade from freezing by covering it with a layer of 12 inches to 24 inches of hay, straw, or insulating blankets covered with waterproof canvas or sheeting.

c. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

d. Concrete Temperature As-Mixed: Provide as-mixed concrete temperature that is not less than the following, depending upon the ambient temperature:

i. 60 degrees F when the ambient temperature is above 30 degrees F;
ii. 65 degrees F when the ambient temperature is between 0- and 30-degrees F; and
iii. 70 degrees F when the ambient temperature is below 0 degrees F.

e. Placement: Do not place concrete that is less than 60 degrees F nor more than 90 degrees F.

f. Protection: Unless otherwise specified, maintain the minimum temperature of concrete at 60 degrees F. Temperatures specified to be maintained during the protection period are those measured at the concrete surface, whether the surface is in contact with formwork, insulation, or air. Measure the temperature with a surface temperature measuring device having an accuracy of +/- 2 degrees F. Measure the temperature of concrete in each placement at regular time intervals.

g. Protection against freezing: Cure and protect concrete against damage from freezing for a minimum period of 3 days, unless otherwise specified. Maintain the minimum specified surface temperature of the concrete during that period.

h. The protection period may be reduced to 2 days if one or more of the following is used to alter the concrete mixture and is approved by the Engineer:

i. Type III portland cement, meeting the requirements of ASTM C150, is substituted for the Type I portland cement.
ii. A strength accelerating admixture, meeting the requirements of ASTM C494, is added.

i. After Termination of Protection: Do not permit the surface temperature of the concrete to decrease in temperature more than 50 degrees F in a 24 hours period.

j. During periods not defined as cold weather, but when freezing temperatures may occur, protect concrete surfaces against freezing for the first 24 hours after placing.

k. Protection Deficiency: If the temperature requirements during the specified protection period are not met, but the concrete was prevented from freezing, continue protection until twice the deficiency of protection in degree-hours is made up. Deficient degree-hours may be determined by multiplying the average deficiency in temperature by the number of hours the temperature was below 60 degrees F.

l. Curing of Concrete: Prevent concrete from drying during the required curing period.

2. Hot Weather Concreting: Comply with ACI 305R and the following:

a. Provide temperature of concrete, (as placed), that is not so high as to cause difficulty from loss of slump, flash set, or cold joints, and does not exceed 90 degrees F. When the temperature of concrete exceeds 90 degrees F, undertake precautionary measures approved by the Engineer. When the temperature of steel forms is greater than 120 degrees F, spray the forms with water just prior to placing concrete.

b. Cool concrete ingredients before mixing. Flake ice, or well-crushed ice of size that will melt completely during mixing, may be substituted for all or part of the mixing water if low slump, flash set or cold joints are encountered due to high temperature.

B. Protection against Rain

1. Protect new concrete from the effects of rain until the concrete has sufficiently hardened.

2. Use burlap or 6-mil polyethylene to cover and protect one day's work.

3. After rain has stopped, remove the covering and burlap-drag the surface. Apply curing compound where the previously applied compound has been disturbed or washed away.

1.06 PAY ITEMS

A. Concrete pay items, both critical and non-critical as defined by MDOT, are subject to Quality Control testing by the Owner, unless otherwise noted.

B. No concrete pay items are eligible for or subject to positive pay adjustments. All concrete pay items are subject to negative pay adjustments, in accordance with Table 1 and Table 2.

Table 1: Constructed Concrete Thickness

| Amount Less Than Required Thickness | Percent of Reduction in Unit Price |
|---|---|
| 0" to 1/4" (0 to 5 mm) | None |
| more than 1/4", but not exceeding 1/2" (56 mm to 10 mm) | 20 |
| more than 1/2", but not exceeding 1" (03 mm to 25 mm) | 50 |
| more than 1" (greater than 25 mm) | Remove and replace |

Table 2: Constructed Concrete Compressive Strength

| Under Required Compressive Strength | Percent of Reduction in Unit Price |
|---|---|
| 0 to 150 psi (0 to 1 MPa) | None |
| more than 150 psi, but not exceeding 300 psi (1 MPa to 2 MPa) | 20 |
| more than 300 psi, but not exceeding 500 psi (2 MPa to 3.5 MPa) | 50 |
| more than 500 psi (greater than 3.5 MPa) | Remove and replace |

C. Reductions in the unit price are additive; that is, if an area of concrete is deficient by 3/8 inch (9 mm) and is under strength by 200 psi (1.4 MPa), the total reduction is 20% plus 20% for a total reduction of 40%.

D. The deficient area of concrete identified by a core shall be confirmed by drilling and testing two additional cores, one on each side of the deficient core and 20 feet (6 m) from it, when possible. This extra core drilling and testing shall be at the Contractor's expense.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Aggregates: Conform to the requirements of ASTM C 33, MDOT 902, and this specification.

1. Fine Aggregates:

   a. Clean, hard, durable, uncoated particles of natural sand, free from lumps of clay, soft or flaky material and, at the time of use, free from crusts of hard or frozen material.

   b. Natural Sand 2NS consisting of fine granular material resulting from the natural disintegration of rock; free from organic impurities (when measured by subjecting to the sodium hydroxide colorimetric test, produced color shall not be darker than light brown).

   c. The following gradation represents the extreme limits of suitability for use from all sources of supply (MDOT "2NS", Table 902-4):

| SIEVE ANALYSIS (MTM 109) | TOTAL % PASSING BY WEIGHT |
|---|---|
| 3/8 in | 100 |
| No. 4 | 95-100 |
| No. 8 | 65-95 |
| No. 16 | 35-75 |
| No. 30 | 20-55 |
| No. 50 | 10-30 |
| No. 100 | 0-10 |
| Loss by Washing (No. 200)* | 0-3 |

   * Michigan Test Method, MTM 108

   d. Provide fine aggregate with reasonably uniform gradation from any one source and not exhibiting the extreme percentage of gradation specified above. Fine aggregate from any one source having a variation in fineness modulus greater than 0.20 more than or less than the fineness modulus of the representative sample will be rejected.

2. Coarse Aggregate:

   a. Hard, strong, durable, pebbles, crushed natural stone, free from adherent coatings, clay lumps, coal and lignite and other foreign matters. Chert (excluding sound gravels) or other nondurable particles shall not exceed 3% by weight.

   b. Coarse aggregate derived from crushed concrete is not permitted.

   c. Uniformly graded within the following limits (MDOT "6AA", Table 902-1):

| SIEVE ANALYSIS (MTM 109) | TOTAL % PASSING BY WEIGHT |
|---|---|
| 1-1/2 in | 100 |
| 1 in | 95-100 |
| 1/2 in | 30-60 |
| No. 4 | 0-8 |
| Loss by Washing (No. 200)* | 1.0 Max** |

* Michigan Test Method, MTM 108

** Loss by washing of 2.0 percent for material produced entirely by crushing rock, boulders, cobbles or concrete.

B. Cementitious Materials:

1. Portland cement, ASTM C150, Type I , Type II, or Type III

2. Slag cement, MDOT 901.06 and ASTM C 989 Grade 100 or Grade 120

3. Fly ash, MDOT 901.07 and ASTM C 618, Class F

4. Blended hydraulic cement, ASTM C 595 or ASTM C 1157

5. Silica fume, MDOT 901.08 and ASTM C1240

C. Water: MDOT 911; Clean, potable, low-alkali content (maximum 80 parts per million), and free amounts of oils, acids, alkalis, salts, organic materials, or other substances that are deleterious to concrete or metal in the concrete.

D. Admixtures: Conform to the following:

1. Air Entrainment: MDOT 903.01 and ASTM C 260

2. Water Reducing: MDOT 903.02 and ASTM C 494, Type A

3. Accelerators: MDOT 903.04 and ASTM C 494, Type C

4. Calcium Chloride: Not permitted

E. Polypropylene Fibers: Fiber Reinforced Concrete shall consist of a blend of high-performance co-polymer macro fibers and polypropylene microfibers.

The macros shall be made of 100% virgin co-polymers containing no reprocessed olefin materials, 2” in length with a denier of 4500 and a minimum tensile strength of 75 ksi. The micro portion shall be multi-length with “1/2 and 3/4” virgin polypropylene fibers and both types shall meet the requirements of ASTM C-1116 Type III.

F. Curing Materials:

1. White pigmented, impervious membrane curing compound: MDOT 903.06A and ASTM C 309, Type 2, Class B Vehicle, with the following additions:

a. Base tests for moisture retention, reflectance, and drying time on curing compound application rate of 200 square feet per gallon (5 square meters per liter).

b. Allow three weeks from the time of sampling before reporting results.

c. Store the compound in clean containers.

2. Insulating Blankets: MDOT 903.07C and Federal Specifications HH-1-521e, minimum 2 inches thick, minimum R-Value of 7.0 (°F*hr.*$ft^2$/Btu) per inch, and enveloping membranes.

G. Joint Materials:

1. Expansion joints: Pre-molded, non-extruding bituminous fiber conforming to MDOT 914.03 and ASTM D1751 (AASHTO M 59).

2. Contraction or Weakened Plane Joints: Pre-molded filler conforming to ASTM D994 (AASHTO M 33).

3. Hot-Poured Joint Sealant: ASTM D6690 with exceptions specified in MDOT Section 914.04.A.

4. Backer Rod for Use with Hot-Poured Joint Sealant: Solid, round, heat resistant, closed-cell, cross-linked polyethylene foam rod conforming to MDOT 914.04B and ASTM D5249, Type I.

H. Reinforcement: See Section 03 3000, if applicable.

I. Smooth Dowel Bars for Transverse Expansion and Contraction Joints: MDOT 914.07.

J. Devices for Transverse End-of-Pour Joints: MDOT 914.08.

2.02 CONCRETE MIX

A. Mix concrete in accordance with ASTM C94.

B. Proportion concrete by weighing and in conformance to the following table, unless otherwise directed by the Engineer:

| | |
|---|---|
| 1. Compressive Strength: | 4,000 psi at 28 days |
| 2. Maximum water/cementitious ratio: | 0.45 |
| 3. Air content: | 5.5% plus or minus 1.5% |
| 4. Slump: | 3 inches plus or minus 1 inch |
| 5. Minimum Cementitious Content: | 611 lbs./cy |
| 6. Maximum size of aggregate: | 1-1/2 inch |
| 7. Maximum water-soluble chloride ion: | 0.15% content in hardened concrete of percent by weight of concrete. |
| 8. Polypropylene Macro Fiber Content: | 0.15% (by volume) /cy of concrete |

C. Add air entrainment agent to produce a total air content of 5.5% +/- 1.5% at the point of placement and an air void system with the following characteristics when evaluated in accordance with ASTM C457:

1. Spacing factor less than 0.008 inch.

2. Specific surface: at least 600 square inch per cubic inch of air void volume.

3. Voids per linear inch at least 1-1/2 to 2 times greater than the air content percentage.

D. Provide slump as described above when tested in accordance with ASTM C143 unless otherwise directed by the Engineer, and except for hand placement. Slump not more than 4 inches for concrete that is hand-placed.

E. Add mixing water at the batch plant only. Do not add water at the Site unless authorized by the Engineer. When authorized to add water at the Site, do not add water more than one time. Adding water and the result on concrete is the responsibility of the Contractor.

F. Slag cement, fly ash, silica fume, and/or blended cement may be used as a partial replacement for Portland cement provided that testing confirms that the as-designed mixture, using the specific materials and sources contemplated for the project, complies with the requirements of this Article 2.02, including the requirement for adequate mitigation of risk of alkali-silica reactivity.

1. The maximum permitted replacement of Portland cement with slag cement is 40% by weight of the total cementitious material (Portland cement plus slag cement). Slag must not be from open hearth furnace.

2. The maximum permitted replacement of Portland cement with fly ash is 25% by weight of the total cementitious material (Portland cement plus fly ash).

3. The maximum permitted replacement of Portland cement with supplementary cementitious materials is 40% by weight of the total cementitious material.

4. The total alkali content of the cementitious materials shall not exceed 3.5 pounds per cubic yard, when evaluated in accordance with ASTM C114 and ASTM C311.

G. Perform preconstruction testing or provide current testing of similar mix to be utilized for this job to verify that the proposed combination of aggregates and cementitious materials will be adequate to mitigate the risk of alkali-silica reactivity (ASR).

1. Evaluate fine and coarse aggregate by a minimum of two tests each in accordance with ASTM C1260.

   a. Aggregate sources that exhibit ASTM C1260 mean mortar bar expansion less than 0.10% at 16 days will be considered acceptable and no further testing for ASR mitigation will be required.

   b. Aggregate sources that exhibit ASTM C1260 mean mortar bar expansion equal to or greater than 0.10% at 16 days will be considered potentially reactive and unacceptable.

2. If the aggregate is reactive, evaluate the effectiveness of the proposed pozzolans and ground granulated blast-furnace slag to control deleterious ASR by conducting a minimum of two tests in accordance with ASTM C1567.

   a. If the ASTM C1567 mean mortar bar expansion is less than 0.10% at 16 days, the tested combination of cement replacements and aggregate will be considered acceptable and no further testing for ASR mitigation will be required.

b. If the ASTM C1567 mean mortar bar expansion is equal to or greater than 0.10% at 16 days, the tested combination of cement replacements and aggregate will be considered indicative of potentially deleterious expansion and unacceptable.

c. Acceptable test results in accordance with ASTM C1567 will be accepted in lieu of testing in accordance with ASTM C1260.

2.03 EQUIPMENT

A. Finishing Machine: Power driven and of an approved type that will strike-off and compact the concrete with a screening and troweling action.

B. Forms: Metal, of an approved section that will ensure their rigidity under the impact, thrust, and weight of the heaviest machine carried on them.

1. Minimum length of 10 feet and a depth not less than the edge thickness of the work prescribed; width of the base in direct bearing on the soil not less than 8 inches; at least three stake pockets for each 10-foot section of form.

2. Straight, free from distortion and showing no vertical variation greater than 1/8-inch in 10-foot lengths from the true plan surface on the top of the form when tested with a 10-foot straight edge.

3. Connect form sections with a locked joint that is free from vertical movement in excess of 1/8-inch and free from horizontal movement in excess of one-quarter of an inch under the impact, thrust and weight of the heaviest machine carried on forms.

4. Provide sufficient forms so that it will not be necessary to remove them in less than 12 hours, or longer if required, after the concrete has been placed.

C. Water Supply: Provide pumps and pipelines with sufficient capacity and nature to ensure an ample supply and adequate pressure of water, simultaneously, for all the requirements of machinery, mixing, curing, sprinkling, subgrade and all other requirements of the work. Water may be supplied in approved tank wagons.

## PART 3 - EXECUTION

3.01 PREPARATION

A. Smooth, trim, and compact the subgrade to the required line, grade, and cross-section. Thoroughly compact the subgrade, between lines at least 12 inches outside of each edge of the proposed pavement, by rolling with a roller of an approved type weighing not less than 5 tons.

B. Ensure that the subgrade is moist at the time of placing concrete. If the subgrade becomes dry before the concrete is placed, sprinkle the subgrade with water using a method of sprinkling that does not permit pools of water to form on the subgrade. Do not place the concrete on muddy, soft or frozen subgrade.

C. Restore and thoroughly compact rutting and other displacement caused by material hauling equipment or by the paver, for a distance of at least 100 feet ahead of the subgrade planer. Maintain the remainder of the prepared subgrade in its compacted state and true to the required grade and cross-section.

D. Place the concrete forms in advance of placing concrete. Substantially bring the foundation on which the forms are to be placed to the proper grade. Do not place forms on dikes or mounds. Where feasible, bring the subgrade to the approximate required cross-section by means of a subgrade machine.

E. Check forms for line and grade in advance of placing concrete. Adequately stake and brace forms to resist the pressure of the concrete and the thrust of any equipment traveling on them. Provide uniform bearing on the subgrade throughout the forms' entire length and width. Finish the entire width of the subgrade and thoroughly compact it for a sufficient distance outside the area required for the pavement in order to adequately support the forms. Place forms in direct contact with the subgrade. After the forms have been set to grade, thoroughly compacted, both inside and outside, by use of an approved mechanical form tamper. Joint all forms neatly and tightly, securely stake by at least three stakes per form, and thoroughly clean and oil forms before concrete is placed against them.

F. After the forms are set in place, check their top surface for grade and trueness with a straight edge not less than 10 feet long. Reset or move any forms showing a variance greater than 1/8 inch in 10 feet.

G. Coat the surfaces of manhole frames with oil to prevent bond with concrete pavement.

## 3.02 CONSTRUCTION

A. Except as modified herein, comply with MDOT Sections 601.03 and 602.03 and ACI 304R.

B. Mixing:

1. On the Project Site, mix in drum type batch mixer, complying with ASTM C685. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.

2. Transit mixers: Comply with ASTM C94.

C. Placing Concrete:

1. Do not proceed with concrete placement until the conditions of the subgrade/subbase are approved by the Engineer.

2. Distribute or spread the concrete as soon as placed. Deposit concrete on the subgrade so as to require as little handling as possible and to avoid segregation and separation of the materials. Distribute concrete to such depth and sufficiently above grade so that when consolidated and finished, the surface conforms to the required finished grade. Consolidate the concrete along the faces of the forms and adjacent to joints. Consolidate concrete with an approved vibrator to fill all voids and finish to ensure a dense smooth surface.

3. Deposit and spread concrete continuously, as far as possible between transverse joints. In the case of a temporary shutdown, cover the concrete at the unfinished end of the slab with wet burlap. In the event of an unavoidable interruption of the work continuing more than 30 minutes, place a construction joint, provided the section is 10 feet or more in length between joints. Remove sections less than 10 feet in length at no expense to Owner.

D. Tie Bars, Dowels and J-Bolts: Place tie bars and dowels at the required depth parallel to the finished surface, perpendicular to the joints and at the uniform spacing shown on the Drawings. Use approved chairs or dowel baskets to support the tie bars or dowels in place or use approved mechanical devices; do not place tie bars or dowels by hand methods.

E. Joints:

1. Construct all joints with faces perpendicular to the surface of the pavement. Construct transverse joints at right angles to the centerline of the pavement, unless indicated otherwise on the Drawings. Do not permit transverse joints to vary more than 1/4 inch from a true line.

   Construct longitudinal joints along or parallel to the centerline of the pavement, unless indicated otherwise on the Drawings. Do not permit longitudinal joints to vary more than one-quarter (1/4") inch from their true designated positions.

2. Finish the pavement surface adjacent to all joints to a true surface. Where indicated on the Drawings, edge the surface adjacent to joints to the radius shown. Test the surface across the joints with a 10-foot straight edge as the joints are finished, and correct irregularities before the concrete has hardened.

3. Longitudinal Joints: Bulkhead construction joints or contraction joints, as shown on the Drawings.

   a. Provide a keyway in the bulkhead construction joints.

   b. Accurately form keyways with templates of metal, wood, or other approved material.

   c. Provide the gauge or thickness of the template material to form the full keyway as specified.

4. Transverse Joints: Contraction joints, expansion joints or construction joints.

5. Contraction Joints: Transverse contraction joints are without tie bars. Locate transverse contraction joints at 24 to 30 times the pavement thickness, except do not exceed a maximum spacing of 15 feet. Provide tie bars in longitudinal contraction joints. Form contraction joints by saw cutting to a depth of 1/3 of the pavement thickness. Perform additional saw cutting to form 1/4-inch wide by 1/2-inch-deep sealant reservoir at the top of the contraction joint. Where pavement under construction is adjacent to an existing pavement, construct contraction joints in line with similar joints in the abutting pavement.

   a. Provide tie bars in longitudinal contraction joints, of length and size shown on the Drawings.

   b. Embed tie bars on each side of the longitudinal contraction joint as shown on the Drawings and locate at the centerline of the concrete pavement thickness.

   c. Space tie bars in longitudinal contraction joints as shown on the Drawings.

6. Expansion Joints: One (1") thick and placed every 600 feet, unless shown otherwise in the Drawings. Where the pavement under construction is adjacent to an existing pavement, construct expansion joints in line with the expansion joints in the abutting pavement.

   a. Provide expansion joints at right angles to the centerline, perpendicular to the surface of the finished pavement and extended entirely through the concrete. Provide smooth dowels, of length and size shown on the Drawings, with expansion cap on one end. Embed dowels a minimum on each side of the expansion joint as shown on the Drawings and locate at the centerline of the concrete pavement thickness. Space dowels in expansion joints as shown on the Drawings.

b. During installation, maintain the joint filler in place by an approved installing device that is securely staked. Maintain the top of the joint filler at not less than l/2 inch or more than 3/4 inch below the finished surface. Cover the top of the joint filler with an approved metal cap before the concrete is placed.

c. Shape the metal cap to the finished crown of the pavement. Provide a metal cap that will not warp or twist out of shape. Keep the cap in place during finishing machine operations.

d. Place concrete simultaneously against the dowels and joint filler to a depth approximately equal to the depth of the finished pavement. Thoroughly consolidate concrete with vibration tools. Carefully remove the installing device so that the joint filler and caps are not disturbed.

7. Construction Joints: Form construction joints with dowels whenever an unavoidable interruption of the work constituting a shutdown of more than 30 minutes has occurred, or when directed by the Engineer. Strike the concrete and finish to the bulkhead.

   a. Saw cut to form minimum 1/4-inch wide by 1/2-inch-deep sealant reservoir at the top of the construction joint, or as shown on the Drawings.

   b. Provide dowels, of length and size shown on the Drawings, in construction joints. Embed dowels on each side of the joint as shown on the Drawings and locate at the centerline of the concrete pavement thickness. Space dowels in construction joints as shown on the Drawings.

8. Clean the sealant reservoirs of all extraneous matter. Ensure that the contact faces of the joints are dry at the time of filling and sealing. Compressed air jets, wire brushes and such additional equipment as may be necessary to clean the openings and dry the contact faces of the joints will be required.

9. Fill the top of contraction joints, construction joints, and expansion joints and seal with hot, poured sealant before any traffic is permitted on the pavement. See Section 32 13 73 for additional information. Install joint sealant by hand pouring pots, mechanical methods, or any other method that will give satisfactory results. Place sufficient sealant into the joints so that, upon completion of the work, the surface of the sealant will be flush with the surface of the pavement. Do not spill the sealant on exposed surfaces of the concrete. Immediately remove excess sealant on the surface of the concrete pavements. If the sealant subsides to a level below the surface of the slab, place a second application of sealant. When more than one application is

required to fill the joint, perform succeeding applications immediately after shrinkage of the previous sealant application has taken place.

a. Do not place sealant when the air temperature in the shade is less than 50 degrees F, except with the approval of the Engineer.

b. Do not permit traffic over the sealed joints until the sealant has hardened sufficiently to resist pickup.

F. Finishing: After the placement of the concrete, test surface with straight edge and finish with burlap drag and perform final finishing on slabs at catch basins with broom.

G. Surface Requirements: On the day following placement of the concrete, the pavement will be straight edged by the Engineer. A 10-foot straight edge will be placed parallel to the centerline so as to bridge any depressions and touch high spots. High spots indicated by a variation exceeding 1/8 inch from the straight edge will be plainly marked. Remove high spots or reduce by rubbing with a carborundum brick and water. If these methods are inadequate to remove the high spots, use an approved surface-grinding machine.

H. Removal of Forms:

1. Do not remove forms from freshly placed concrete until it has set for at least 12 hours. Carefully remove forms so that no damage is done to the edge of the pavement.

2. After the forms have been removed, clean the ends of joints and point honeycombed areas.

3. Cover the sides of the pavement with curing material except where honeycombed areas are to be pointed. Cover areas to be pointed with wet burlap until the pointing is complete, and then cure as specified in Article 3.02 I.

I. Curing:

1. Immediately after finishing operations have been completed and free water has left the surface, completely coat and seal the surface of the slab and curb with a uniform layer of curing compound. Apply the compound in one or two applications, as required by manufacturer instructions. When the compound is applied in two increments, follow the first application with the second application within 30 minutes.

2. Thoroughly agitate the compound to a uniform consistency, with the pigment uniformly suspended, before transferring the compound between containers and before use.

3. Apply the compound in a continuous uniform film by means of mechanical pressure sprayer equipment at the rate stipulated by the compound manufacturer but not less than one gallon per 200 square feet of surface. Use equipment that provides adequate stirring of the compound during application. Hand spray equipment will be permitted for application of the curing compound over the sides of the slab.

4. Provide uniformly painted, solid white surface after application of curing compound. If appearance is blotchy and non-uniform, apply another layer of curing compound.

5. If rain falls on the newly coated pavement before the film has dried sufficiently to resist damage, or if the film is damaged in any other way, apply a new coat of material to the affected areas equal to that originally applied.

6. Protect the treated surface from injury for a minimum period of seven days. All traffic will be considered injurious to the film of applied compound. A minimum of foot traffic will be permitted on the dried film as necessary to properly carry on the work, provided that any damage to the film is immediately repaired by the application of another coat of the compound.

7. Provide sufficient burlap, cotton, or polyethylene sheet coverings to protect the pavement in case of rain or breakdown of the spray equipment. If any hair checking develops before the curing compound can be applied, perform preliminary curing with wetted burlap or cotton coverings before the curing compound is applied.

8. Cold Weather Curing: Comply with Article 1.06.A.1.

J. Cleanup:

1. After the concrete has gained sufficient strength, but no sooner than twelve hours, remove fixed forms and immediately backfill the spaces on both sides with sound earth of topsoil quality.

2. Compact and level backfill, providing a neat, workmanlike condition.

## 3.03 FIELD QUALITY CONTROL

A. Delivery Tickets: With each load of concrete delivered to the Site, provide ready-mix concrete producer's delivery tickets in triplicate, one for Contractor, one for Engineer, and one for Owner. Provide the following information on delivery tickets:

1. Date and serial number of tickets.

2. Name of ready-mixed concrete plant, operator and job location.

3. Types of cementitious materials, brand names, and proportions.

4. Types of admixtures, brand names, and dosages.

5. Aggregate sizes, proportions, and sources.

6. Specified cement content in bags per cubic yards of concrete or mix number.

7. Truck number and time dispatched.

8. Amount of concrete in load, and in cubic yards delivered.

9. Slump of concrete ordered.

10. Amount of water added before the truck left the plant.

11. Water added at the jobsite, if any and if authorized by Engineer, and corresponding slump of concrete. Adding water at the jobsite without authorization by the Engineer is grounds for rejection.

B. Quality assurance testing, defined in Articles 1.04 C and 1.04 D, will be performed by a testing agency retained by the Owner. This testing is in addition to the quality control program required to be performed by the Contractor.

## 3.04 PROTECTION

A. Protect newly laid pavement that is threatened with damage by rain with a covering of burlap or cotton fabric or by other suitable means.

B. Comply with the hot and cold weather construction requirements in Part 1 of this specification.

C. The Contractor shall be responsible for the quality and strength of the concrete laid during cold weather. Remove and replace concrete injured by frost action at no expense to the Owner.

D. Opening to traffic:

1. Do not open pavement to traffic until the strength of placed concrete attains 90% the specified design strength and not before 14 days after time of placement, without the written permission of the Engineer.

2. Engineer reserves the right to require that curing operations be discontinued when the concrete has reached 85 percent of the design strength.

3. Opening the pavement to traffic will not constitute a final acceptance of the concrete.

**END OF SECTION**

**SECTION 32 13 73**

**PAVEMENT JOINT SEALANTS**

## PART 1 – GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, materials, equipment, supervision, and incidentals necessary to prepare surfaces and install joint backing and joint sealant.

1.02 REFERENCES

A. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.

B. ASTM C 1193 - Standard Guide for Use of Joint Sealants.

C. ASTM D 1667 - Standard Specification for Flexible Cellular Materials—Poly (Vinyl Chloride) Foam (Closed-Cell).

D. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).

E. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

1.03 SUBMITTALS

A. See Section 01 30 00 – Administrative Requirements.

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Certifications: Letter of certification from sealant manufacturer indicating that sealant product is compatible with the backing materials and joint substrates.

1.04 QUALITY ASSURANCE

A. Maintain one copy of each referenced document covering installation requirements on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

C. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years' experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials to comply with manufacturer's written instructions and to prevent deterioration and damage due to moisture, high or low temperatures, contaminants, and other causes.

1.06 PROJECT CONDITIONS

A. Install sealant under temperature and humidity conditions that are recommended by the sealant manufacturer.

1. Do not install sealants when ambient or substrate temperatures are below 40 degrees F.

2. Do not install sealants when joint substrates are wet.

B. Do not install sealants when the joint width is less than that allowed by sealant manufacturer for the application indicated.

## PART 2 – PRODUCTS

2.01 SEALANTS

A. Cold-Applied Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Class 25, Uses T, I, M and A; single component.

1. Subject to compliance with requirements, approved products include:

a. Sikasil-728 SL by Sika.

B. Hot-Applied Paving Sealant: ASTM D6690, single component.

1. Subject to compliance with requirements, approved products include:

a. Roadsaver 221 by Crafco Inc.

b. Hot-applied Polymeric Joint Sealant #3405 by W. R. Meadows, Inc.

2.02 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing for Cold-Applied Sealant: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.

D. Joint Backing for Hot-Applied Sealant: ASTM C1751 asphalt saturated fiberboard; thickness and width as required, to control sealant configuration.

## PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work and are compliant with joint configuration and size tolerance requirements.

B. Verify that joint backing is compatible with sealant.

C. Do not proceed with sealant installation until unsatisfactory conditions have been corrected.

## 3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant and effective joint width.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

## 3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions, unless more stringent requirements are provided herein.

B. Perform installation in accordance with ASTM C 1193.

C. Install backer materials to support sealants during application and at positions required to produce cross-sectional shapes and depths of installed sealant relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of backer materials.

2. Do not stretch, twist, puncture, or tear backer materials.

3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

D. Install sealants by proven techniques to comply with the following and at the same time that backer materials are installed:

1. Place sealants so that they directly contact and fully wet joint substrates.

2. Completely fill recesses provided for each joint configuration.

E. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:

1. Width/depth ratio of 2:1.

2. Neck dimension no greater than 1/3 of the joint width.

3. Surface bond area on each side not less than 75 percent of joint width.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Apply sealant within recommended application temperature ranges and weather conditions. Do not apply sealant if these conditions are not expected to prevail until the sealant has cured to a point that it will not be adversely affected. Consult manufacturer when sealant cannot be applied within these temperature ranges and weather conditions.

H. Tool joints concave in a manner approved by the sealant manufacturer.

3.04 CLEANING

A. Clean adjacent soiled surfaces as the Work progresses.

B. Use methods and materials that are approved by the sealant manufacturer.

3.05 PROTECTION OF FINISHED WORK

A. Protect sealants until cured.

B. Cut out and replace damaged and deteriorated joint sealants immediately so that repaired areas are indistinguishable from the original work.

**END OF SECTION**

**SECTION 32 17 23.13**

**PAINTED PAVEMENT MARKINGS**

## PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, materials, supervision, and incidentals necessary to complete pavement markings, including parking bays, crosswalks, arrows, handicapped symbols, curb, and "No Parking" striping and markings.

1.02 REFERENCES

A. Federal Specification TT-B-1325D, "Beads (Glass Spheres) Retro-Reflective," Rev. D, 2007.

B. Federal Specification TT-P-1952, "Paint, Traffic, and Airfield Marking, Waterborne," Rev. F, 2015.

C. MPI "Approved Products List," March 1, 2016, Master Painters Institute.

D. MPI "Architectural Painting Specification Manual," current edition, Master Painters Institute.

E. FHWA MUTCD, "Manual on Uniform Traffic Control Devices for Streets and Highways," U.S. Department of Transportation, Federal Highway Administration; current edition at http://mutcd.fhwa.dot.gov

1.03 SUBMITTALS

A. See Section 01 30 00 for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Installation methods.

C. Certificates: Submit for each batch of paint and glass beads stating compliance with specified requirements.

D. Sample color chips of proposed paint products.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver paint in containers of at least 5 gallons accompanied by batch certificate.

B. Deliver glass beads in containers suitable for handling and strong enough to prevent loss during shipment accompanied by batch certificate.

C. Store products in manufacturer's unopened packaging until ready for installation, in an area that provides the recommended environmental conditions for storage and a minimum of 30 feet from site buildings.

D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

E. Store, mix, and prepare paints only in areas designated for that purpose.

F. Provide clean cans and buckets for mixing paints and for receiving rags and other waste materials associated with painting. Clean buckets regularly. At the close of each workday, remove used rags and other waste materials associated with painting from the site.

G. Take precautions to prevent fire in and around painting materials. Provide and maintain appropriate fire extinguishers near paint, paint storage, and mixing areas.

1.05 PROJECT CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.06 EXTRA MATERIALS

A. Supply two containers (1 gallon each) of each color for Owner's use.

## PART 2 - PRODUCTS

2.01 MATERIALS

A. Line and Zone Marking Paint: MPI No. 97 Latex Traffic Marking Paint; color(s) as indicated.

1. Parking Lots: Yellow

2. Handicapped Symbols: Blue

3. Crosswalks: White

4. Other: Per MMUTCD

B. Paint for Obliterating Existing Markings: FS TT-P-1952; black for bituminous pavements, gray for Portland cement pavements.

C. Reflective Glass Beads: FS TT-B-1325, Type I (low index of refraction), Gradation A (coarse, drop-on); with silicone or other suitable waterproofing coating to ensure free flow.

D. Temporary Marking Tape: Preformed, reflective, pressure sensitive adhesive tape in color(s) required; Contractor is responsible for selection of material of sufficient durability as to perform satisfactorily during period for which its use is required.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

### 3.02 PREPARATION

A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Obliteration of existing markings using paint is acceptable in lieu of removal; apply the black and/or gray paint, as applicable, in as many coats as necessary to completely obliterate the existing markings.

D. Clean surfaces thoroughly prior to installation.

1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.

2. Completely remove rubber deposits, existing paint markings, and other coatings adhering to the pavement, by scraping, wire brushing, sandblasting, mechanical abrasion, or approved chemicals.

3. Sandblasting: Use equipment of size and capacity necessary, providing not less than 150 cfm of air at pressure not less than 90 psi at each nozzle used.

E. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.

F. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

G. Temporary Pavement Markings: When required or directed by Engineer, apply temporary markings of the color(s), width(s) and length(s) as indicated or directed.

1. After temporary marking has served its purpose, remove temporary marking by carefully controlled sandblasting, approved grinding equipment, or other approved method so that surface to which the marking was applied will not be damaged.

2. At Contractor's option, temporary marking tape may used in lieu of temporary painted marking; remove unsatisfactory tape and replace with painted markings at no additional cost to Owner.

H. Do not inter-mix materials of different character or different manufacturer.

I. Do not thin material except as recommended by paint manufacturer.

3.03 INSTALLATION

A. Begin pavement marking as soon as practicable after surface has been cleaned and dried. Do not paint wet or damp surfaces.

B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.

C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.

D. Comply with FHWA MUTCD manual (http://mutcd.fhwa.dot.gov) for details not shown.

E. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.

F. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.

1. Apply paint in one coat only. Wait for paint to dry per manufacturers recommendations and then apply a second coat.

2. Wet Film Thickness: 0.015-inch, minimum.

3. Length Tolerance: Plus or minus 2 inches.

4. Width Tolerance: Plus or minus 1/8 inch.

G. Roadway Traffic Lanes: Use suitable mobile mechanical equipment that provides constant agitation of paint and travels at controlled speeds.

1. Conduct operations in such a manner that necessary traffic can move without hindrance.

2. Place warning signs at the beginning of the wet line, and at points well in advance of the marking equipment for alerting approaching traffic from both directions. Place small flags or other similarly effective small objects near freshly applied markings at frequent intervals to reduce crossing by traffic.

3. If paint does not dry within expected time, discontinue paint operations until cause of slow drying is determined and corrected.

4. Use hand application by pneumatic spray for application of paint in areas where a mobile paint applicator cannot be used.

5. Distribute glass beads uniformly on the paint lines within ten seconds without any waste, applied at rate per manufacturer recommendation; if the marking equipment does not have a glass bead dispenser, use a separate piece of equipment adjusted and synchronized with the paint applicator; remove and replace markings having faulty distribution of beads.

H. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.

1. Mark the International Handicapped Symbol at indicated parking spaces.

2. Hand application by pneumatic spray is acceptable.

3. Parking space striping dimensions indicated on the Drawings are nominal dimensions. Comply with the following tolerances:

   a. Parking space length: Plus or minus 2 inches,

   b. Parking space width or base line dimension: Plus or minus 2 inches,

   c. Group of parking spaces: Plus or minus 2 inches per run,

   d. Stripe width: 4 inches plus or minus 1/8 inch, and

   e. Extend stripes to within 3 inches of walls or other vertical surfaces.

I. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends of the design and size indicated.

3.04 DRYING, PROTECTION, AND REPLACEMENT

A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.

B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.

C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.

D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.

E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.

F. Replace removed markings at no additional cost to Owner.

G. Clean paint spots and repair damage to other finishes.

H. Provide attic stock of paint if requested by owner in quantities requested, one of each color utilized.

**END OF SECTION**

## SECTION 32 31 13

## CHAIN LINK FENCES AND GATES

### PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Pond Enclosure: Procurement, installation, equipment, and labor associated with the installation of 6-foot-high chain link fences and two, side by side gates, each 5-feet wide for a total opening width of 10-feet.

1.02 REFERENCES

A. ASTM A491, “Specification for Aluminum-Coated Steel Chain-Link Fence Fabric,” ASTM International

B. ASTM F567, “Standard Practice for Installation of Chain-Link Fence,” ASTM International

C. ASTM F626, “Standard Specification for Tin Mill Products, Electrolytic Tin Plate, Single Reduced,” ASTM International

D. ASTM F900, “Standard Specification for Industrial and Commercial Steel Swing Gates”

E. ASTM F1043, “Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework,” ASTM International

F. ASTM F1083, “Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures,” ASTM International

1.03 SUBMITTALS

A. See Section 01 3000 – Administrative Requirements.

B. Product Data: Include construction details, material description, dimensions of individual components and profiles, and finishes for chain-link fences.

1. Fence posts, rails, and fittings

2. Chain-link reinforcements and attachments

C. Shop Drawings: Include drawings, elevations, sections, details, and attachments to other work.

D. Product Certificates: For each type of chain-link fence from manufacturer.

1.04 PROJECT CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

## PART 2 – PRODUCTS

2.01 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F1043 and F1083 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F1043 and F1083 based on the following:

1. Fence Height: Match Existing Height, or as noted in drawings

2. Strength Requirement: Medium

3. Pipe Diameter and Thickness: According to ASTM F1043.

   a. Top Rail and Bottom Rail: 1-5/8-inch diameter

   b. Line Post: 2-3/8-inch diameter

   c. Terminal Post: 4.0-inch diameter

4. Metallic Coating for Steel Framing: External, Type B, zinc with organic overcoat, consisting of a minimum of 0.9 oz./sq. ft. (0.27 kg/sq. m) of zinc after welding, a chromate conversion coating, and a clear, verifiable polymer film. Internal, Type D, consisting of 81 percent, not less than 0.3-mil- (0.0076-mm-) thick, zinc-pigmented coating.

2.02 TENSION WIRE

A. Metallic-Coated Steel Wire: 0.177-inch- diameter, marcelled tension wire complying with ASTM A 817 and ASTM A 824, with the following metallic coating:

1. Type II, zinc coated (galvanized) by hot-dip process, with the following minimum coating weight: Class 3: Not less than 0.8 oz./sq. ft. (244 g/sq. m) of uncoated wire surface.

2.03 FITTINGS

A. General: Comply with ASTM F 626.

B. Post Caps: Provide for each post: Provide line post caps with loop to receive tension wire or top rail.

C. Rail and Brace Ends: For each corner, pull, and end post.

D. Rail Fittings: Provide the following.

1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.

2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails in the fence line-to-line posts.

E. Tension and Brace Bands: Pressed steel.

F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Tie Wires, Clips, and Fasteners: According to ASTM F 626.

1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames. Hot-Dip Galvanized Steel: 0.106-inch diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

H. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. zinc. Polymer coating over metallic coating.

2. Aluminum: Mill finish.

2.04 FENCE GROUNDING

A. Provide the following:

1. Ground clamps at each fence post at 24-inch intervals. Clamps to be the product of Harger or equal.

2. Ground rods at each corner post per side of fenced area. Ground rods to be exothermic type connections.

3. Conductive wire between all fence and gate posts for electrical continuity on all sides and at swing gate locations.

2.05 SWING GATES

A. Provide galvanized steel manufactured double swing gate.

B. Gate to be in accordance with ASTM F900.

C. Swing gate post to be 4-inch diameter, and thickness per ASTM F1043.

D. Gate width: As indicated in the contract drawings.

**PART 3 – EXECUTION**

3.01 EXAMINATION

A. Examine areas and conditions, with Owner present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Engineer.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.03 INSTALLATION, GENERAL

A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated. Install fencing at locations indicated on project drawings.

3.04 CHAIN-LINK FENCE INSTALLATION

A. Post Excavation and setting: Sectional fencing will be utilized. No post excavation or setting required.

B. Terminal Posts: Locate terminal end and corner posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.

C. Line Posts: Space line posts uniformly at 10 feet on center.

D. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.

1. Locate horizontal braces at mid-height of fabric 72 inches or higher, on fences with top rail and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.

E. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches OC. Install tension wire in locations indicated before stretching fabric.

1. Top Tension Wire: Install tension wire through post cap loops.

2. Bottom Tension Wire: Install tension wire within 6-inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.

F. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

G. Intermediate Rails: Install and secure to posts with fittings.

H. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches on center.

I. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.

1. Maximum Spacing: Tie fabric to line posts at 12 inches on center and to braces at 24 inches on center.

J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side.

K. Grounding System: Install in accordance with manufacturer's installation requirements and drawing detail.

3.05 GATE INSTALLATION

A. Install gates according to manufacturer's instructions.

B. Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

**END OF SECTION**

# SECTION 32 90 00

# SITE RESTORATION

## PART 1 – GENERAL

1.01 SCOPE OF WORK

A. Provide all labor, equipment, materials, supervision, and incidentals necessary to complete groundcover, topsoil, topsoil amendments, initial maintenance of planting materials.

1.02 REFERENCES

A. MDOT Section 816, “Turf Establishment,” Michigan Department of Transportation Standard Specifications for Construction

B. MDOT Section 917, “Turf and Landscaping Materials,” Michigan Department of Transportation Standard Specifications for Construction

1.03 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations

2. Storage and handling requirements and recommendations

3. Installation methods

C. Notices: Submit 48-hour written notice prior to turnover to Owner for watering and maintenance.

1.04 WARRANTY

A. Warrant grass groundcover and plantings for a period of one year after date of Substantial Completion, against defects including death and unsatisfactory growth and except for defects resulting from neglect by Owner, abuse by others, or natural phenomena. Replace unsatisfactory plant material at end of warranty period at no additional expense to the Owner. One replacement is required.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 2-year experience installing similar products.

B. Testing: Laboratory testing for suitable soil amendments and fertilizer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products as recommended by supplier until ready for installation.

B. Handling: Handle materials to avoid damage.

1.07 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside supplier's recommended limits.

1.08 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

## PART 2 – PRODUCTS

2.01 VEGETATIVE GROWTH LAYER

A. Provide earthen material capable of supporting vegetative growth meeting the following requirements:

- Organic Content: 3.5% Minimum
- pH: 6.5-7.5 (Range)
- Sieve:
  - 100 percent passing 1-inch Screen
  - 95-100 percent passing ½-inch Screen
  - Minimum 40 percent passing No. 100 Screen

B. Contractor to provide one (1) test result during placement to confirm vegetative growth layer meets the requirements of these specifications.

2.02 SEEDING

A. Provide Seed Mixture per MDOT Table 816-1 Seed Mix Selection Guide compatible with TUF (Turf Urban Freeway) mixture, with a High Salt Tolerance.

B. Substitutions: Not Permitted.

2.03 MULCH

A. Meet the requirements of MDOT 816 for mulch.

2.04 FERTILIZER

A. Meet the requirements of MDOT 816 Class A for fertilizer.

2.05 WATER

A. Clean, fresh water, free of substances that could prevent germination/growth of grass seed.

2.06 MATERIALS

A. Provide materials in accordance with MDOT Section 816, 911, and 917.

## PART 3 – EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install materials in accordance with approved submittals. Install landscape work in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.

B. Provide maintenance and watering until turnover to Owner for maintenance and watering. Replace damaged materials and dead or unhealthy plants prior to turnover to Owner.

C. Work shall be performed in accordance with MDOT Standard Specifications for Construction 816: Turf Establishment.

D. VEGETATIVE GROWTH

1. Do not place soil in a frozen condition, or on frozen subgrade.

2. Place material to a uniform depth of 3 inches (minimum).

E. SEEDING

1. Perform seeding and mulching as specified in MDOT 816.03.C.

2. Apply seed mix at a rate of 220 pounds per acre.

3. Perform seeding after April 15 and before October 10 unless approved by the Owner's Representative.

4. Place seed to provide a continuous stand of grass. The Owner or Owner's Representative will determine compliance with this requirement.

F. MULCH

1. Apply mulch at a rate of 2 tons per acre within one day after seeding.

2. Roll mulched area, immediately following mulching.

G. FERTILIZER

1. Apply fertilizer at a rate of 176 pounds per acre.

H. WATER

1. Apply water immediately after each area has been seeded and saturate soil to a minimum depth of 4 inches.

2. Provide sufficient watering by means of frequent light watering during seed germination when rainfall is insufficient. At a minimum, apply supplemental water to all seeded areas, daily during germination period so vegetative growth layer remains moist to a minimum depth of 2 inches.

I. CLEAN UP

1. Remove and properly dispose of excess and waste material off site. Clean adjacent paved areas, and remove materials from gutters, curbs, roadways, and catch basins.

3.04 PROTECTION

A. Touch-up, repair, or replace damaged products before Substantial Completion.

**END OF SECTION**

# SECTION 33 35 00

# SANITARY SEWERAGE

## PART 1 – GENERAL

1.01 SUMMARY

A. Section includes sanitary sewerage drainage piping, fittings, accessories, and bedding.

B. Specifications of local jurisdiction take precedence for sanitary sewerage service.

1.02 RELATED SECTIONS

A. Section 31 10 00 – Site Clearing

B. Section 31 23 19 – Ground Water Control

C. Section 32 00 00 – Site Restoration

D. Other sections of the specifications apply to the extent required for proper performance of this work.

1.03 REFERENCES

A. ASTM (ASTM International)

1. ASTM A53 Standard Specification for Pipe, Steel, Black and Hot

2. ASTM C12 Standard Practice for Installing Vitrified Clay Pipe Lines

3. ASTM C76 Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

4. ASTM C443 Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets

5. ASTM D2680 Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Composite Sewer Piping

6. ASTM D2751 Standard Specification for Acrylonitrile Butadiene Styrene (ABS) Sewer Pipe and Fittings (Withdrawn 2014)

7. ASTM D3034 Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings

8. ASTM D3262 Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Sewer Pipe

9. ASTM F949 Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings

10. ASTM F1803 Standard Specification for Poly (Vinyl Chloride)(PVC) Closed Profile Gravity Pipe and Fittings Based on Controlled Inside Diameter

B. MDOT Standard Specifications for Construction.

C. Authority Having Jurisdiction standards within project locale.

1.04 DEFINITIONS

A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.05 SUBMITTALS

A. See Section 01 30 00.

B. Product Data: Submit data indicating pipe, and pipe accessories.

C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.

D. Manufacturer's Certificate: Certify that products meet or exceed ASTM requirements. Submit two copies of certification to the Engineer.

1.06 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record location of pipe runs, connections, manholes, and invert elevations.

B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.07 FIELD MEASUREMENTS

A. Verify that field measurements and elevations are as indicated.

1.08 COORDINATION

A. Coordinate the Work with termination of sanitary sewer connection outside building, connection to municipal sewer utility service, and trenching.

## PART 2 – PRODUCTS

2.01 SEWER PIPE MATERIALS

A. Use sewer pipe manufactured with a minimum of five-year production history. Verification of such experience is required with the submittal of the Proposal.

B. Use Reinforced Concrete Pipe that conforms to ASTM C76 with size and class as shown on the Drawings with Wall Type C with a modified grooved tongue joint with rubber gaskets.

C. Use Reinforced Concrete Pipe Joint Device that conforms to ASTM C443, rubber compression gasket joint.

D. Use PVC Large Diameter Profile Pipe manufactured in accordance with ASTM F949 or ASTM F1803. Use bell and spigot type for joints. Use pipe manufactured by Lamson, Contech or approved equal.

E. Truss Pipe

1. Use PVC truss pipe that conforms to ASTM D2680 and use joints with push-on type with rubber gasket.

2. Use Truss pipe manufactured by Lamson, Contech or approved equal.

F. Use solid wall pipe for sanitary sewers that conforms to ASTM SDR-23.5.

G. Use Fiberglass Reinforced Polymer Mortar Pipe that conforms to ASTM D3262 as manufactured by HOBAS or approved equal.

H. Use sanitary sewer leads that conform to ASTM D2751 or ASTM D3034, SDR 23.5.

2.02 PIPE ACCESSORIES

A. Modified Grooved Tongue with Rubber Joint: Use grooved tongue concrete pipe with a rubber gasket into a grove cast into the tongue. Use a modified groove or bell tapered to fit the rubber gasket to tolerances as determined by the gasket manufacturer. Do not use a pipe tongue made out of round by more than plus or minus 1/16 inch. Use a lubricant as supplied by the manufacturer on the groove and on the tongue in making up the joints, and use coupled joints in accordance with the pipe manufacturer's requirements. Use rubber gaskets in accordance with current ASTM standards for sewer joints and fabricate from a high-grade rubber-like compound having a minimum tensile strength of 1,200 psi and a seven-day water absorption by weight not to exceed five percent (5%).

B. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee and wyes.

2.03 BEDDING MATERIALS

A. Bedding: Class II natural sand conforming to the requirements of MDOT Standard Specification for Construction.

**PART 3 – EXECUTION**

3.01 EXAMINATION

A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on drawings.

3.02 PREPARATION

A. Correct over-excavation with compacted sand.

B. Remove large stones or other hard matter that could damage pipe or impede consistent backfilling or compaction.

3.03 BEDDING

A. Excavate pipe trench in accordance with Section 31 23 16.13. Hand trim excavation for accurate placement of pipe to elevations indicated.

B. Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches.

C. Maintain optimum moisture content of bedding material to attain required compaction density.

3.04 INSTALLATION – PIPE

A. Install pipe, fittings, and accessories in accordance with ASTM C12. Seal joints watertight.

B. Lay pipe to slope gradients noted on drawings.

C. Install bedding at sides and over top of pipe.

D. Refer to Section 31 23 16.13 for trenching requirements. Do not displace or damage pipe when compacting.

3.05 FIELD QUALITY CONTROL

A. Request inspection prior to placing bedding.

B. Perform compaction testing in accordance with Section 402.03 of the MDOT Standard Specifications for Construction.

C. Testing:

1. Exfiltration Method Procedures:

a. Seal the section of sewer to be tested by inserting inflatable rubber bags in the pipes or by other means approved by the Engineer, and then introduce water into a manhole until the section is completely filled. Fill the pipe to the test level prior to the time of ex-filtration testing to permit normal absorption into the pipe walls.

b. Throughout the test period of at least one hour, maintain the water level in the upper manhole at least 24” above the crown of the upper end of the pipe or at least 24” above the ground water table, which ever is higher. Limit the length of pipe tested so that the pressure on the center line of the lower end of the section tested does not exceed 6’ of water column.

c. Do not exceed 50 gallons per inch of pipe diameter for the exfiltration leakage per mile per day of sewer pipe, including manholes in the test section.

2. Air Testing Method Procedures:

a. Trench backfill and clear the section of sewer to be tested. Inflate pneumatic plugs (having a sealing length equal to or greater than the diameter of the pipe to be tested) to 25 psi placed in both ends of the pipe to be tested. Pressurize the sealed sewer pipe to 4 psi above the average backpressure of ground water over the sewer pipe and the air pressure allowed to stabilize for at least two minutes.

b. After the stabilization period, pressurize the line to 3.5 psi and the time in minutes measured for pressure to drop to 2.5 psi. If ground water is present, increase the air pressure to 3.5 psi above the level of ground water and the drop of one-pound psi of air pressure measured in minutes.

c. Follow the guidelines for air testing techniques to be in accordance with the latest ASTM standard practice for testing sewer lines by low-pressure air test method for the appropriate pipe material.

d. Do not allow air leakage test results to be less than the time per inch of pipe diameter per length of sewer pipe as specified in the AIR TEST TABLE.

AIR TEST TABLE
SPECIFICATION TIME (min:sec) REQUIRED FOR
PRESSURE DROP FROM 3 ½ TO 2 ½ PSI
WHEN TESTING ONE PIPE DIAMETER ONLY
PIPE DIAMETER, INCHES

| Length of Sewer Pipe In Feet | 4 | 6 | 8 | 10 | 12 | 15 | 18 | 21 | 24 | 30 | 36 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0:04 | 0:10 | 0:18 | 0:28 | 0:40 | 1:02 | 1:29 | 2:01 | 2:38 | 4:08 | 5:56 |
| 50 | 0:09 | 0:20 | 0:35 | 0:55 | 1:19 | 2:04 | 2:58 | 4:03 | 5:17 | 8:15 | 11:53 |
| 75 | 0:13 | 0:30 | 0:53 | 1:23 | 1:59 | 3:06 | 4:27 | 6:04 | 7:55 | 12:23 | 17:00 |
| 100 | 0:18 | 0:40 | 1:10 | 1:50 | 2:38 | 4:08 | 5:56 | 8:05 | 10:34 | 14:11 | |
| 125 | 0:22 | 0:50 | 1:28 | 2:18 | 3:18 | 5:09 | 7:26 | 9:55 | 11:20 | | |
| 150 | 0:26 | 0:59 | 1:46 | 2:45 | 3:58 | 6:11 | 8:30 | | | | |
| 175 | 0:31 | 1:09 | 2:03 | 3:13 | 4:37 | 7:05 | | | | | |
| 200 | 0:35 | 1:19 | 2:21 | 3:40 | 5:17 | | | | 12:06 | | |

| Length of Sewer Pipe In Feet | 4 | 6 | 8 | 10 | 12 | 15 | 18 | 21 | 24 | 30 | 36 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 225 | 0:40 | 1:29 | 2:38 | 4:08 | 5:40 | | | 10:25 | 13:36 | | |
| 250 | 0:44 | 1:39 | 2:56 | 4:35 | | | 8:31 | 11:35 | 15:07 | | |
| 275 | 0:48 | 1:49 | 3:14 | 4:43 | | | 9:21 | 12:44 | 16:38 | | |
| 300 | 0:53 | 1:59 | 3:31 | | | | 10:12 | 13:53 | 18:09 | | |
| 350 | 1:02 | 2:19 | 3:47 | | | 8:16 | 11:54 | 16:12 | 21:10 | | |
| 400 | 1:10 | 2:38 | | | 6:03 | 9:27 | 13:36 | 18:31 | 24:12 | | |
| 450 | 1:19 | 2:50 | | | 6:48 | 10:38 | 15:19 | 20:50 | 27:13 | | |
| 500 | 1:28 | | | 5:14 | 7:34 | 11:49 | 17:01 | 23:09 | 30:14 | | |

3. Deflection Testing for Flexible Thermoplastic Pipes:

   a. Test the pipeline for excess deflecting by pulling a "go – no go" mandrel through the pipe from manhole to manhole. Size the mandrel in accordance with Article "d.", below, and as specified in the Special Provisions. A "deflectometer" may also be used to check the record deflection. Test 30 days after installation.

   b. Wherever possible and practical, initiate the testing at the downstream lines and proceed toward the upstream lines.

   c. Where deflection is found to be in excess of Allowable Testing Limits, excavate to the point of excess deflection and carefully compacted around the point where excess deflection was found. Retest the line for deflection. However, after the initial testing should the deflected pipe fail to return to the original inside diameter size, replace the line.

   d. Deflection Limits for Thermoplastic Pipes:

      i. Do not exceed five percent (5%) of the "Base I.D." for the deflection of Poly (Vinyl Chloride) (PVC) pipe and the internal diameter of the pipe. Calculate the "Base I.D." in accordance with the following:
      Ave. ID = Ave. OD – 2(1.06)t
      Tolerance Package = (A″ + B″ + B″ + C″)≠/″

Where:
A = OD Tolerance (ASTM D3034)
B = Excess Wall Thickness Tolerance = 0.06t
C = Out-of-Roundness Tolerance = 0.015 (ave. OD)
t = Minimum Wall Thickness (ASTM D3034)

ii. Do not exceed five (5) % of the average ID of the pipe in accordance with ASTM D2680 for the deflection of composite pipe (Truss pipe).

3.06 PROTECTION OF FINISHED INSTALLATION

A. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

**END OF SECTION**

# SECTION 33 43 00

# STORM DRAINAGE

## PART 1 - GENERAL

### 1.01 SCOPE

This Section includes storm sewer Work indicated on the Plans complete with pipes, box culverts, joints, structures, pipe bedding, final inspection and appurtenances.

### 1.02 RELATED SECTIONS

A. Section 31 23 19: Ground Water Control

B. Section 31 23 16.13: Trenching

C. Section 32 13 13: Concrete Pavement

D. Other sections of the specifications apply to the extent required for proper performance of this work.

### 1.03 REFERENCE STANDARDS

Unless otherwise specified, the Work for this Section shall conform to the applicable portions of the following Standard Specifications:

A. ANSI - American National Standard Institute

B. ASTM - American Society of Testing & Materials

C. AASHTO - American Association of State Highway Transportation Officials

D. MDOT - Michigan Department of Transportation, 2020 Standard Specifications for Construction

E. NCPI - National Clay Pipe Institute

### 1.04 SOURCE QUALITY CONTROL

Laboratory test not less than one (1) percent, with a minimum of three (3) pieces each size, material and class of gravity pipe required in the Work. For a pipe smaller than 60-inches, test shall be D-load test. For a pipe greater than 60-inches in diameter, testing may consist of compressive strength testing or D-load tests. D-load testing shall conform to ASTM C 655.

1.05 SUBMITTALS

A. Submit manufacturer's data for all precast elements.

B. Submit a complete field report of the location of all wye openings and sump pump discharge leads to the Engineer at the end of each sewer section of the Project or on the last day of each week, whichever occurs first.

C. Submit two (2) copies of the laboratory test reports required to the Engineer.

D. Submit complete shop drawings including layout plans, sections, profiles, reinforcing details and joint details for all manhole tees to the Engineer.

E. Submit complete shop drawings including layout plans, sections, profiles, reinforcing details, and joint details for all reinforced concrete pipes, and other precast unit.

1.06 STORAGE OF MATERIALS

Piping material shall not be stacked higher than four (4) feet (1.2 m) or as recommended by the manufacturer, whichever is lowest. Suitable racks, chairs, and other supports shall be provided to protect preformed pipe mating surfaces from damage. Store bottom tiers off the ground, alternate tiers and chock tier ends.

Jointing and sealing materials used in the storm sewer system shall be protected from sunlight and protected from damage at all times and stored in a cool and clean place as practicable and as recommended by the manufacturer until ready for application.

1.07 HANDLING OF MATERIAL

Load and unload materials using suitable approved equipment. Material shall not be dropped, bumped or allowed to impact against itself. Damaged material shall be rejected by the Engineer.

Lifting devices shall be suited to the Work and shall protect surfaces from damage.

## PART 2 – PRODUCTS

2.01 REINFORCED CONCRETE PIPE

Reinforced concrete pipe shall conform to ASTM C76. Twelve (12) inch thru 30-inch (300 mm thru 750 mm) diameter pipe shall be Class II thru V as indicated on the plans, Wall B or Wall C, circular reinforced. Thirty-six (36) inch through 108-inch (900 mm thru 2700 mm) diameter pipe shall be Class I through V as indicated on the plans, Wall B or Wall C, circular reinforced or elliptical reinforced. Pipes greater than 54-inches (1370 mm) shall be provided with stirrups meeting MDOT 2003 requirements.

When elliptical reinforcement is used, the following method of indexing the steel and the pipe barrel shall be used.

A dummy lift pin form shall be set in the outer pipe wall form projecting into the pipe wall a minimum of 1-3/4 inches (45 mm) and a maximum of 2-1/4 inches (55 mm). An additional spacer chair shall be welded to the elliptical steel cage at the proper location so as to engage the dummy lift pin form during the pipe casting operation. It is the intent of the spacer chair and dummy lift pin arrangement to provide a means of assuring the final position of the elliptical steel cage within the barrel of the pipe and, further, for providing a means of indexing the pipe in the field to assume proper placement of the pipe. Prior to shipment of the elliptically reinforced pipe, they shall be striped along the inside top with a minimum 1-inch (25 mm) wide indelible marker so that final inspection of the pipe orientation can be made following completion of the installation.

For circular pipe 114 inches (2850 mm) or larger in diameter, the design information in accordance with Section 6 of ASTM C76, shall be submitted to the Engineer for approval, prior to fabrication.

The design of all circular pipes shall meet the D-load requirements for the class of pipe indicated on the Plans.

## 2.02 JOINTS FOR CONCRETE PIPE

Premium joints for circular pipes shall conform to ASTM C443 limited as follows: Section 5.1 of C443, "Physical Requirements for Gaskets," shall be replaced with Section 6.9 of C361, "Rubber Gaskets." Also, Section 5 of C443 shall be limited to a modified grooved tongue to receive a rubber gasket.

Only lubricant, as supplied by the pipe manufacturer, shall be used on the groove and on the tongue in making up joints, and the joints shall be coupled in accordance with the pipe manufacturer's requirement.

The inside annular space of all concrete pipe 36-inch (900 mm) diameter (or equivalent) and larger shall have the inside annular space filled with cement mortar and troweled flush. Mortar shall consist of 1-part Portland cement and two (2) parts of plaster sand. Mortar for inside joints shall be mixed with only enough water for "dry packing."

## 2.03 REINFORCED CONCRETE CULVERT

Reinforced concrete culvert shall conform to ASTM C1433. Design and submittals shall be in accordance with this section.

## 2.04 CORRUGATED PLASTIC EDGE DRAIN/UNDERDRAINS

Piping for edge drain/underdrain shall conform to Section 33 46 00.

## 2.05 END SECTIONS

Metal end sections shall conform to MDOT 909.05.

## 2.06 STORM STRUCTURES

Materials for storm sewer structures shall conform to the requirements indicated on the Plans and as specified below.

A. Concrete Block

Block shall conform to ASTM C139, manufactured of Portland cement conforming to ASTM C150, Type II. Blocks shall be solid curved blocks with the inside and outside surfaces parallel and curved to the required radii. The blocks shall have a groove or other approved type of joint at the ends. Blocks intended for use in the cones or tops of manholes shall have such shape as may be required to form the structure as indicated on the Plans.

B. Precast Concrete

Precast concrete manhole base, cone and riser units shall conform to ASTM C478, and shall be circular with circular reinforcement. For manhole depths to 32 feet (9.7 m), the wall thickness of the sections shall be five (5) inches (125 mm). The joints on precast sections shall be the same as the joints on storm sewer.

Precast concrete manhole tee units shall conform to ASTM C76, Class IV and shall be circular with circular reinforcement. Shop Drawings shall be provided for all manhole tees. The joints on the precast manhole tee shall be the same as the joints on the storm sewer section.

Precast concrete base, top slab, and grade ring units shall conform to ASTM C478.

C. Manhole Steps

Steel reinforced plastic steps shall be of suitably approved co-polymer polypropylene conforming to ASTM D4101, PP0344B33534Z02 with 1/2 inch (12 mm) minimum diameter deformed reinforcing bar conforming to ASTM A615, Grade 60.

Manufacturer: M A Industries, Inc. or engineer approved equivalent

Manhole steps shall be of the type and size indicated on the Plans and shall comply with applicable occupational safety and health standards. Manhole steps shall be installed at locations indicated on the Plans.

D. Frames and Covers

Frames and covers for manholes, catch basins, and inlets shall conform to ASTM A48, Class 30, gray iron and shall be of the types and sizes as indicated on the Plans. The castings shall be neatly made and free from cracks, holes, and other defects. Surfaces of casting shall be ground to assure proper fit and to prevent rocking.

## 2.07 CONCRETE

All concrete for all precast members shall be in accordance with MDOT Section 701, use Grade S2; 3,500 psi (24 MPa) strength; Type IA cement; 6.0 sacks cement per cubic yard (335 kg/m$^3$); 6A coarse aggregate; 2NS fine aggregate; 6.5% ± 1.5% air content; 3-inch (75 mm) maximum

slump; no admixtures without the Engineer's approval. Concrete for all cast-in-place members shall be in accordance with Section 32 13 13.

2.08 CONCRETE REINFORCEMENT

In accordance with MDOT Section 905, use ASTM A615, Grade 60 for bars and ASTM A185 for welded wire fabric.

2.09 PVC PIPE

All PVC Pipe utilized for storm drainage shall be Schedule 40 and conform to ASTM F1803, or as indicated on the project drawings.

## PART 3 - EXECUTION

3.01 VERIFICATION OF EXCAVATION AND BEDDING

Prior to the installation of any storm sewer piping, structures, or materials, examine all trenches and other excavations for the proper grades, lines, levels and clearances required to receive the new work. Ascertain that all excavation bottoms, compacted subgrades and pipe bedding are adequate to receive the storm sewer materials to be installed. Correct all defects and deficiencies before proceeding with the work.

3.02 EXISTING STORM SEWERS AND DRAINS

Expose the existing storm sewer and structures to which the new Work is to be connected and notify the Engineer of same. The Engineer will verify the vertical and horizontal locations of the existing system and shall inform the Contractor as to the necessary adjustments required to align the new storm sewer Work with the existing system.

3.03 PREPARATION

The outside surface of the spigot end and the inside surface of the bell end of the pipe shall be cleaned and free of any foreign materials, other than the sealant recommended by the manufacturer, prior to installation.

All pipe, frames, covers, accessories, and appurtenances shall be examined carefully for damage and other defects immediately prior to installation. Defective or damaged material shall be rejected and removed from the Project by the Contractor.

3.04 INSTALLATION – GENERAL

Each section of pipe, when placed to grade and line, shall have firm bearing on the trench bedding throughout its length.

Cutting of pipe shall be done with approved tools and by approved methods suitable for the pipe material. Pipe cutting methods that produce a smooth, square-cut end without damage to the pipe and that minimize air-borne particles, shall be employed. Pipe cutting shall be performed using the recommendations of the manufacturer of the type of the pipe materials being cut and according to the best trade practices. When cutting pipe, care shall be taken to prevent damage to the interior and exterior surfaces. Damage to either shall be cause for rejection of a complete section of pipe.

During the preparation of the pipe bedding and until the trench has been satisfactorily backfilled, the trench shall be kept free of water. A groundwater control system, in accordance with Section 31 2319, shall be provided and maintained by the Contractor. The groundwater control system shall remain in operation until the trench is backfilled.

Backfill shall be as indicated on the Plans and as specified in Section 31 2323.

3.05 PIPE LAYING

Installation of pipe shall conform to ASTM C12, and as recommended by the pipe manufacturer. The pipe shall be protected during handling against impact shocks and free fall. Hooks shall not be permitted to come in contact with pre-molded joint surfaces.

Pipes having premolded joint rings or attached couplings shall be handled so that no weight, including the weight of the pipe itself, will bear on or be supported by the jointing material. Care shall be taken to avoid dragging any pipe on the ground or allowing it to be damaged by contact with gravel, crushed stone, or other hard objects.

All pipe shall be laid to the line and grade called for on the Plans. Each pipe as laid, shall be checked by the Contractor with line and grade pole or laser system to ensure that this result is obtained. When employing a laser system, the Contractor shall have an independent and alternate means of checking the line and grade. The finished work shall be straight and shall be sighted through between manholes.

Construction shall begin at the outlet end and proceed upgrade with spigot ends pointing in direction of flow. Bell holes shall be excavated so that the full length of the barrel will bear uniformly on the bedding material.

Lubricants, primers or adhesives as recommended by the pipe or joint manufacturer shall be used immediately prior to jointing.

The pipe shall be centered in the bells or grooves and pushed tight together to form a smooth and continuous invert. After laying of pipe, care shall be taken so as not to disturb its line and grade. Any pipe found off grade or out of line shall be re-laid properly by the Contractor.

Mechanical means shall be used for pulling home all pipe where manual means will not result in pushing and holding the pipe home. Mechanical means shall consist of a cable placed inside of the pipe with a suitable winch, jack, or come along for pulling the pipe home and holding the pipe in position.

Circular concrete pipe with elliptical reinforcement shall be installed with the lift holes to the top of the pipe. The manufacturer's marks designating the top and bottom of the pipe shall not be more than five degrees from the vertical plane through the longitudinal axis of the pipe. After the pipe is installed, the lift holes shall be sealed with suitable concrete plugs.

## 3.06 PIPE BEDDING

After the bottom of trench has been excavated the pipe bedding material will be installed in accordance with the requirements for Class B bedding. The pipe shall then be installed strictly in accordance with the manufacturer's recommendations and City requirements. After the pipe is laid, the bedding shall be continued above the pipe as specified. Particular care shall be taken to assure filling and tamping all spaces under, around and above the top of the pipe.
Class B

The pipe shall be bedded in crushed stone bedding material placed on the trench bottom. The bedding material shall have 100% passing a ¾-inch (20 mm) sieve and 95% retained on a No. 4 (4.75 mm) sieve or MDOT Class II Sand or 6AA natural aggregate. The bedding shall have a minimum thickness beneath the pipe of four (4) inches (100 mm) or 1/8 of the outside diameter of the pipe, whichever is greater, and shall extend up the sides of the pipe to the horizontal centerline. Backfill from pipe horizontal centerline to a level not less than 12 inches (300 mm) above the top of the pipe shall be natural bank run sand meeting the requirements of MDOT Class II granular material. This material shall be placed in 6-inch (150 mm) layers with each layer thoroughly compacted to 95% maximum density by mechanical means with the finished compacted material a minimum of 12 inches (300 mm) above the top of pipe.

A continuous and uniform bedding shall be provided in the trench for all buried pipe.

## 3.07 STORM STRUCTURES

Construct storm sewer manholes, catch basins, inlets and other structures to the grades, lines and levels indicated on the Plans and as specified. Structures shall be complete with concrete bases, reinforcing, frames, covers, adjustment bricks, etc., as shown and as required for a complete installation. Storm sewer structures shall conform to the type of material and dimensions indicated on the Plans.

Cast-in-place structures shall be constructed in accordance with Section 32 13 13.

A. Block Structures
Construct concrete block structures in the locations and according to the details on the Plans. The first course of concrete blocks shall be placed on the prepared base or footings in a full bed of mortar. Mortar joints shall be full and close in all courses. Courses shall be level throughout. Stagger joints in adjoining courses by one-half the length of the block as nearly as practicable. Joints shall be uniform in thickness throughout the structures. Strike all joints and properly point to provide true, smooth surfaces.

B. Precast Concrete Structures

Construct precast concrete structures as detailed on the Plans. Provide mortar joints struck smooth. Provide three (3) to five (5) courses of 8-inch (200 mm) brick or concrete grade rings at top of structure for future adjustment of castings.

A cement mortar plaster coat shall be applied to the exterior surfaces of block sections of all storm structures as indicated on the Plans. Plaster coat shall be 1/2 inch (10 mm) thick.

Provide and install all frames and covers to the elevations indicated on the Plans. Castings shall be set in a full bed of cement mortar 1/2 inch (10 mm) thick, minimum. Mortar joints shall be struck smooth.

Steps shall be installed at the plant by the manufacturer of precast units. Field install steps for block, or cast in place structures of the types and in the locations indicated on the Plans.

Pipe up to 42 inches (1050 mm) in diameter, shall be connected to storm structures using a grouted joint, as indicated on the Plans. The pipe shall be properly supported, so that any settlement will not disturb the connection.

For pipe, 48 inches (1200 mm) in diameter or larger, the pipe shall be installed as an integral part of the manhole which shall be constructed of 3,500 psi (24 MPa) concrete and reinforcing, as indicated on the Plans.

Manhole tees, as indicated on the Plans, may be used for pipe 42 inches (1050 mm) in diameter or larger. Connection to manhole tees shall be made using tees and pipe having the same type of joint. The pipe and tee shall be properly supported with concrete as indicated on the Plans.

Sump shall be provided, as indicated on the Plans, in all catch basins and storm manholes having outlets of 18 inches (450 mm) in diameter or less.

Flow channels shall be constructed in all structures not requiring a sump and shall be constructed as indicated on the Plans.

## 3.08 FIELD QUALITY CONTROL

After all the pipe and structures have been laid, constructed and backfilled, the system shall be final inspected. The sewer system shall be ready for the final inspection within two (2) weeks after the completion of each 2,000-foot (600 m) section of sewer installed. Closed circuit television inspections shall comply with NASSCO PACP standards.

The final inspection shall consist of a visible and audible check of the sewers and structures to ascertain that the steps have been placed, all lift holes jointed, the channeling of the manhole bottoms completed, all visible or audible leaks stopped, all pipe has been placed straight and true to the proper slopes and elevations, the required brick courses for adjustment, the frame and cover properly installed, the required end section installed, all trenches and structures backfilled in a workmanlike manner and that the system has been thoroughly cleaned.

The final inspection shall be considered complete when all the repairs have been made.

**END OF SECTION**

# SECTION 33 46 00

# SUBDRAINAGE

## PART 1 – GENERAL

1.01 SECTION INCLUDES

A. Subsurface drainage systems.

B. Filter aggregate and fabric and bedding.

1.02 RELATED SECTIONS

A. Section 31 23 16.13 - Trenching

B. Section 31 10 00 – Site Clearing

C. Other sections of the specifications apply to the extent required for proper performance of this work.

1.03 REFERENCES

A. ASTM D 2729 - Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings

B. ASTM D2751 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings

C. AASHTO M252 - Standard Specification for Corrugated Polyethylene Drainage Pipe

D. Michigan Department of Transportation (MDOT) Standard Specification for Construction

1.04 SUBMITTALS

A. See Section 01 30 00 – Administrative requirements.

B. Shop Drawings: Indicate dimensions, layout of piping, high and low points of pipe inverts, and gradient of slope between corners and intersections.

C. Product Data: Provide data on pipe drainage products and pipe accessories.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Project Record Documents: Record location of pipe runs, connections, cleanouts and principal invert elevations.

F. Samples: Two pieces, minimum 12 inches by 12 inches of filter fabric.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for materials and installation of the work of this section.

## PART 2 – PRODUCTS

2.01 PIPE MATERIALS

A. General: Comply with MDOT 404.

B. Polyvinyl Chloride Pipe: ASTM D2729 or ASTM D2751; MDOT 909.07; Class 40, plain end, 6 inch inside diameter; with required fittings.

C. HDPE Pipe: Perforated, corrugated high density polyethylene in accordance with AASHTO M252 (4-inch diameter or less). ADS N-12 or approved equal with required fittings.

D. Use perforated pipe at subdrainage system; unperforated pipe through sleeved walls and at lateral outlets.

2.02 AGGREGATE AND BEDDING

A. Filter Aggregate and Bedding Material: Open-graded aggregates conforming to MDOT 902.07 34R.

2.03 ACCESSORIES

A. Pipe Couplings: Solid plastic.

B. Geotextile Fabric: Non-woven fabric conforming to MDOT 910.03 A.

## PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on layout Drawings.

3.02 PREPARATION

A. Hand trim excavations to required elevations. Correct over-excavation in accordance with Section 31 23 13.

B. Remove large stones or other hard matter that could damage drainage piping or impede consistent backfilling or compaction.

3.03 INSTALLATION

A. Install and join pipe and pipe fittings in accordance with pipe manufacturer's instructions and in accordance with MDOT 404.

B. Place drainage pipe on clean cut subsoil.

C. Lay pipe to slope gradients noted on Drawings; with maximum variation from true slope of 1/8 inch in 10 feet.

D. Loosely butt pipe ends. Place joint cover strip 12 inches wide, around pipe diameter centered over joint.

E. Place pipe with perforations facing down. Mechanically join pipe ends.

F. Install pipe couplings.

G. Prior to installing filter aggregate, verify that drain ends are plugged and no sections are collapsed or otherwise obstructed.

H. Install filter aggregate at sides, over joint covers and top of pipe. Provide top cover compacted thickness of 12 inches.

I. Place filter fabric over levelled top surface of aggregate cover prior to subsequent backfilling operations.

J. Place aggregate in maximum 4-inch lifts, consolidating each lift.

K. Place impervious fill over drainage pipe aggregate cover and compact.

L. Connect to storm sewer system with unperforated pipe, through installed sleeves.

M. Coordinate the Work with connection to municipal sewer utility service and trenching.

3.04 FIELD QUALITY CONTROL

A. Request inspection prior to and immediately after placing aggregate cover over pipe.

3.05 PROTECTION

A. Protect pipe and aggregate cover from damage or displacement until backfilling operation begins.

**END OF SECTION**