

Erskine Avenue Crossing Improvements

Boardman Township, OH

OPWC Funded Project

May 2026



Mark Delisio P.E.

05/28/2026

0000039498

BOARDMAN TOWNSHIP OFFICIALS

ADMINISTRATION

Mark Ragozine, Administrator

Brad Calhoun, Fiscal Officer

Kim Blasco, Roads Superintendent

Stephanie Landers, Deputy Administrator

TOWNSHIP TRUSTEES

Larry Moliterno, Trustee

Steve Yacovone, Trustee

Matt Gambrel, Trustee

ADVERTISEMENT FOR BIDS/PUBLIC NOTICE TO BIDDERS

Sealed bids will be received at the Roads Superintendent Office, Boardman Township, Road Department Building, 8299 Market Street, Boardman, OH 44512 until 1:30 p.m. on June 12, 2026 and will be opened and read immediately thereafter for the

ERSKINE AVENUE CROSSING IMPROVEMENTS

OPWC FUNDED PROJECT

OPINION OF PROBABLE CONSTRUCTION COST:

BASE BID - \$355,000.00

ALTERNATE A1 - \$10,000.00

ALTERNATE A2 - \$14,000.00

COMPLETION DATE: NOVEMBER 30, 2026

The bid specifications, drawings, plan holders list, addenda, and other bid information (**but not the bid forms**) may be viewed and/or downloaded for free via the internet at <https://bids.verdantas.com>. The bidder shall be responsible to check for Addenda and obtain same from the web site.

Bids must be in accordance with drawings and specifications and on forms available from Verdantas LLC at a non-refundable cost of One Hundred Twenty-Five Dollars (\$125.00.00) for hard copies and Forty-Five Dollars (\$45.00) for electronic files. Documents may be ordered by registering and paying online at <https://bids.verdantas.com>. Please contact planroom@verdantas.com or call (440) 530-2351 if you encounter any problems viewing, registering, or paying for the documents.

OHIO PREFERENCE: In accordance with Ohio Rev. Code §164.05 (A)(6), to the extent practicable, the Prime Contractor and subcontractor shall use Ohio products, materials, services, and labor in connection with this project.

STEEL PRODUCTS MADE IN THE UNITED STATES:

Domestic steel use requirements as specified in Ohio Rev. Code §153.011, <https://codes.ohio.gov/ohio-revised-code/section-153.011>, apply to this project.

(Load-bearing structural purposes only)

Publish: The Vindicator
May 29, 2026
June 5, 2026

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SECTION 1
BID DOCUMENTS

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

- 1.1 Sealed bids shall be received by the Owner at the location specified and until the time and date specified in the Advertisement for Bids/Public Notice to Bidders.
- 1.2 Each bid shall contain the full name and address of each person or company interested in said bid. If no other person be so interested, the Bidder shall distinctly so state the fact.
- 1.3 Bid forms must be completed in ink or by typewriter. Any corrections to the bid forms prior to submission must be initialed by the person signing the bid. Failure to submit any bid form(s) or other required document(s) may be cause for rejection of the bidder's bid at the sole discretion of the Owner.
- 1.4 Bids by Corporations must be executed in the corporate name by the President, Vice President, or other officer accompanied by evidence of authority to sign and the corporate seal must be affixed and attested by the Secretary on the Corporate Resolution form.
- 1.5 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature.
- 1.6 All names must be typed or printed below the signature.
- 1.7 The bid shall contain an acknowledgment of receipt of all Addenda.
- 1.8 If a Bidder wishes to withdraw their bid prior to the opening of bids, they shall state their purpose in writing to the Owner before the time fixed for the opening, and when reached it shall be handed to them unread.
- 1.9 After the opening of bids, no Bidder may withdraw his bid for a period of 90 days.

PART 2 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- 2.1 Before submitting a bid, each Bidder must
 - A. Examine the Contract Documents thoroughly.
 - B. Visit the site to familiarize themselves with local conditions that may in any manner affect cost, progress, or performance of the work.
 - C. Familiarize themselves with Federal, State, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the work.
 - D. Study and carefully correlate Bidder's observations with the Contract Documents.

- 2.2 Reference is made to the Specific Project Requirements for the identification of any reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the work which have been relied upon by the Engineer in preparing the drawings and specifications. Owner will make copies of such reports available to any Bidder requesting them if not made available with the bid documents. These reports are not guaranteed as to accuracy or completeness; nor are they part of the Contract Documents. Before submitting their bid each Bidder will, at their own expense, make such additional investigations and tests as the Bidder may deem necessary to determine their bid for performance of the work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 2.3 Upon request, the Owner will provide each Bidder access to the site to conduct such reasonable investigations and tests as each Bidder deems necessary for submission for their bid.
- 2.4 The lands upon which the work is to be performed, rights-of-way for access thereto, and other lands designated for use by Bidder in performing the work are identified on the Drawings.
- 2.5 The submission of a bid will constitute an incontrovertible representation by the Bidder that they have complied with every requirement of this section and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work.

PART 3 ESTIMATED QUANTITIES

- 3.1 In Unit Price Contracts, the quantities of the work itemized in the bid are approximate only and the bidders are hereby notified that the estimated quantities made by the Engineer are merely for the guidance of the Owner in comparing on a uniform basis all bids received for the work.
- 3.2 The contract quantities, where itemized, are based on plan horizontal and vertical dimensions unless otherwise specified. It is the Contractor's responsibility to verify and determine actual quantities of materials such as pipe, pavement, subgrade, etc. in their ordering materials.
- 3.3 Payments, except for lump sum contracts and except for lump sum items in unit price contracts, will be made to the Contractor only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications.
- 3.4 The successful Bidder will be required to furnish the Owner with a complete breakdown of the lump sum bid items, to the satisfaction of the Engineer/Architect, before signing the Contract documents.

PART 4 CONTRACTOR'S QUALIFICATION

- 4.1 Bidder shall provide detailed information relating to similar projects completed within the past 5 years which demonstrates the bidder's capability, responsibility, experience, skill, and financial standing to undertake this type of project and shall include a list of all projects currently under construction including status and contact person.
- 4.2 Bidder shall own, have rental or lease agreements for, or otherwise have readily available any and all equipment and tools necessary for proper execution of the work. The Owner reserves the right to request lists of equipment or tools available for the project including sources.
- 4.3 Bidder shall provide pertinent information to the Owner relative to any pending suits or outstanding liens. If no information is provided by the Bidder, the Owner shall assume that any such suits or liens do not exist.
- 4.4 The Owner may require similar information on any or all subcontractors proposed by the Bidder.
- 4.5 Bids of corporations not chartered in the state in which the work will take place must be accompanied by proper certification that the corporation is authorized to do business in that state.

PART 5 SUBCONTRACTORS

- 5.1 The Bidder shall state on the appropriate bid form the names of all Subcontractors, Sub Consultants and other professional service providers proposed and the items of work they are to be assigned. All work not assigned to a Subcontractor shall be assumed by the Owner to be performed by the Bidder.
- 5.2 The Owner reserves the right to approve all subcontractors proposed by the Bidder. If the Owner, after due investigation, rejects the use of a proposed subcontractor, the apparent successful Bidder may either submit an acceptable substitution without increase in bid price or decline substitution and withdraw their bid without sacrificing their bid security. Any listed subcontractor to whom the Owner does not make written objection prior to award of contract, shall be deemed acceptable to the Owner.
- 5.3 Requests for changes of Subcontractor by the Bidder after the award shall be subject to the Owner's approval and shall not change the contract bid prices.
- 5.4 No contractor shall be required to employ any Subcontractor, person or organization against whom they have reasonable objection.

PART 6 BID REVIEW BY OWNER

- 6.1 The Owner reserves the right to reject any and all bids, to waive as an informality any and all irregularities, and to disregard all nonconforming, nonresponsive or conditional bids.

- 6.2 All extensions and totals of unit prices and quantities submitted as part of the bid shall be considered informal until verified by the Owner. All bids must be made on the forms contained herein and the bid prices must be written therein, in figures only. Unit prices shall be separately written for "Unit Price Labor," "Unit Price Material," and "Total Unit Price" for each item listed. Should an error in addition and/or multiplication be determined while checking the Contractor's math and verifying their total bid, the "Unit Price Labor" and the "Unit Price Material" figures shall govern in determining the correct "Total Unit Price" and the correct "Item Total."
- 6.3 Each bidder must bid on all Items, Alternates, Deductions, and Additions contained in the Bidding Forms. All bids not in conformity with this notice may be considered non-responsive and may be rejected.
- 6.4 More than one bid for the same work from an individual or entity under the same of different names will not be considered. Reasonable grounds for believing that any bidder has an interest in more than one bid for the work may be cause for disqualification of that bidder and the rejection of all bids in which the bidder has an interest. A subcontractor or supplier is not a bidder, and may submit prices to multiple bidders.
- 6.5 In evaluating bids, the Owner may consider:
- A. The qualifications and experience of the Bidder, proposed subcontractors, and principal material suppliers as outlined in the plans and specifications.
 - B. Financial ability and soundness of the Bidder and proposed subcontractors.
 - C. Completeness of all bid forms and bid requirements.
 - D. Alternates and unit prices requested in the Bid Forms.
 - E. Unit prices or schedules of values that are or appear to be unbalanced.
 - F. Previous contractual experience with the Owner.
 - G. Whether or not the bid package complies with the prescribed requirements.
 - H. The proposed completion date, if applicable.
 - I. Any other matter allowed by law or local ordinance or resolution.
- 6.6 Owner may conduct further investigations as they deem necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications, and financial ability of the Bidder, proposed Subcontractors, and other persons and organizations to do the work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- 6.7 Owner reserves the right to reject the bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

- 6.8 The Contract award shall be based on the lowest and best bid or lowest responsive and responsible bid (as applicable for the public contracting agency receiving bids) for the base bid and selected alternate items (if any) for this project.

PART 7 BID SECURITY

- 7.1 Each bid must be accompanied by a certified or cashier's check in the amount of 10% of the amount bid, an irrevocable letter of credit in the amount of 10% of the amount bid or an original bond in the amount of 100% of the amount bid per O.R.C. Sections 153.54 and 153.571. The certified or cashier's check, or irrevocable letter of credit shall be from a financial institution authorized to transact business in the State of Ohio and acceptable to the Owner. The bond shall be underwritten by a Surety Company authorized to transact business in the State of Ohio having an Ohio agent and listed on the most current Department of the Treasury Circular 570, "Surety Companies Acceptable on Federal Bonds." The bond shall be a "Bid Guarantee and Contract Bond" ("rollover bond") per O.R.C. Sections 153.54 and 153.571 submitted for the full amount of the bid **including all alternates**, if any.

If bid security is made by bond, the Bidder and their Surety shall sign the Supplemental Bond Acknowledgement form and submit with their bid.

- 7.2 The certified or cashier's check, irrevocable letter of credit, or bond shall be made payable to the Owner and shall serve as a guarantee that in the event the bid is accepted and a contract is awarded to the successful Bidder, the contract will be executed by the bidder including any certifications, certificates or additional bonds required by the contract.
- 7.3 Failure on the part of the successful Bidder to execute the contract documents will cause the certified or cashier's check, irrevocable letter of credit, or bond to be forfeited to the Owner as damages.
- A. If the Owner awards the contract without rebidding, the Bidder (and the Surety on their bond if a bond was submitted) shall be liable to the Owner for a penal sum not to exceed the difference between the low bid and the next lowest bidder or 10% of the amount of the bid, whichever is less.
 - B. If the Owner does not award the Contract to the next lowest Bidder, but resubmits the project for bidding; the Bidder (and the Surety on their bond if a bond was submitted) shall be liable to the Owner for a penal sum not to exceed the costs in connection with the resubmission of bids or 10% of the amount of the bid, whichever is less.
- 7.4 Checks or letters of credit for bid security of all bidders will be returned in the manner and timeframe stipulated in the O.R.C. Section 153.54 Bid guaranty to be filed with bid.

PART 8 CONTRACT BOND

- 8.1 As security for faithful performance and payment of all obligations under the Contract, the Owner shall require and the successful Bidder shall furnish either:
- A. *If submitted as Bid Security at time of bid:* "Bid Guarantee and Contract Bond" (AKA "rollover bond") per O.R.C. Sections 153.54 and 153.571.
 - B. *If a cashier's check or irrevocable letter of credit is submitted as Bid Security at time of bid:* Contract Bond per O.R.C. Sections 153.54 and 153.57, in the amount of 100% of the Contract Price. The Contractor and their Surety shall sign the Supplemental Bond Acknowledgement form and submit with the Contract forms
- 8.2 The bond shall be underwritten by a Surety Company authorized to transact business in the State of Ohio having an Ohio agent and listed on the most current Department of the Treasury Circular 570, "Surety Companies Acceptable on Federal Bonds."
- 8.3 The contract bond shall cover correction of the work for the period stated in the specifications and the correction period shall start upon Final Acceptance of the entire project and final payment by the Owner.
- 8.4 Nothing in the performance of the Engineer's service to the Owner in connection with this project shall in any way imply any undertaking for the benefit of the successful Bidder, its subcontractor(s), or the surety of any of them.

PART 9 AWARD AND EXECUTION OF CONTRACT

- 9.1 After the Owner's legislative body awards the project, the successful bidder will receive the unsigned contract documents. Within 10 days after their receipt, the successful Bidder shall sign and deliver to the Owner said contract documents including any certifications, certificates, or additional bonds required by the contract.
- 9.2 The Owner shall execute the Contract within 90 days after the day of the bid opening. When necessary and by mutual consent between the Owner and the Successful Bidder, this 90 day period may be extended.
- 9.3 The date of the Owner's signature on the Contract Agreement shall be the effective contract date.
- 9.4 The Owner shall execute and deliver to the successful Bidder one set of fully executed contract documents.

PART 10 INSURANCE

- 10.1 Verification of limits for public liability, property damage, automobile, Worker's Compensation, or any other insurance required by the provisions of this Contract must be submitted to the Owner prior to execution of the Contract.
- 10.2 All insurance shall be endorsed so that it cannot be cancelled for non-payment of premium for 10 days or cancelled or non-renewed for any other reason in less than 30

days after a written notice of such proposed action by the insurer is given to the Owner. The cancellation clause on the Certificate(s) of Insurance shall read as specified in the Supplementary Conditions and failure to submit an insurance certificate and/or policy endorsement verifying same shall be reason for the Owner to consider the Contractor non-responsive in complying with the requirements for contract execution and may be cause for forfeiture of the Bid Security to Owner.

- 10.3 The Insurer's affording coverage shall be authorized to transact business in the State of Ohio and be listed on the most current Ohio Department of Insurance list of Ohio Licensed Companies.
- 10.4 The Contractor's Liability Insurance policy(s) shall be endorsed such that limits are on a Per Project basis.
- 10.5 The Contractor shall also provide an Owner's and Contractor's Protective Policy.

PART 11 NON-COLLUSION AFFIDAVIT

- 11.1 Collusion between bidders will be cause for rejection of affected bids and may be cause for rejection of all bids. Multiple bids submitted by one bidder under the same name or different names, whether as an individual, firm, partnership, corporation, profit or non-profit, affiliate, or association will be cause for rejection of bids. A subcontractor is not a bidder, and may submit prices to multiple bidders.
- 11.2 All bidders shall submit an affidavit that their bid is genuine and not collusive or sham; that such bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any bidder or person, to put in a sham bid, or that such other bidder or person shall refrain from bidding; that such bidder has not in any manner, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against the Owner or any person or persons interested in the proposed contract; that such bidder is the only party (or parties) who has an interest with the bidder in the profits of any contract which may result from the herein contained proposal; that no individual affiliated with the Owner, including but not limited to the head of any department, any employee, or any other official or officer of the Owner, is or will be directly or indirectly interested in this bid, and/or the profits from this bid if successful; that no individual affiliated with the Owner, including but not limited to the head of any department, any employee, or any other official or officer of the Owner, has or will receive anything of value as a result of the submission of this bid or its award; that no individual affiliated with the Owner, including but not limited to the head of any department, any employee, or any other official or officer of the Owner, has been solicited to provide assistance and/or provided assistance to the bidder which might give the bidder a competitive advantage or circumvent the competitive bidding process; and that all statements contained in said proposal are true; and further, that such bidder has not, directly or indirectly submitted this bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

- 11.3 Each bid must be accompanied by a completed Noncollusion Affidavit provided within the contract documents.
- 11.4 Where there is reason to believe collusion or combination among bidders exists, the Owner reserves the right to reject the bid of those concerned.

PART 12 DELINQUENT PERSONAL PROPERTY STATEMENT

- 12.1 Included with the contract documents is a Delinquent Personal Property Statement to be filled out by the successful Bidder.
- 12.2 The statement shall be sent to both the County Auditor and the County Treasurer. A signed copy shall remain in the contract documents as well.

PART 13 ORIGINAL DOCUMENTS

- 13.1 All bid forms, contract forms, bonds and any other bid documents or contract documents requiring signatures shall be submitted with original signatures. No photo copies or faxed copies of signed documents shall be accepted.

PART 14 ADDENDA

- 14.1 The bidder shall be responsible to obtain Addenda from the web at <https://bids.verdantas.com> .

END OF SECTION 01/28/26

PRICES TO INCLUDE

PART 1 - GENERAL

Any work shown on the plans or required in the specifications but not paid for separately as a bid item shall be included in the cost of other bid items. The amount bid for each Bid Item shall include the following:

- 1.1 All labor, materials, tools, equipment, and transportation necessary for the proper execution of the work in accordance with the Contract Documents.
- 1.2 All assistance required by the Engineer to verify compliance with the Contract Documents, including measuring for final pay quantities.
- 1.3 Project coordination and scheduling.
- 1.4 Detailed breakdown of lump sum bid items as requested by the Engineer.
- 1.5 All provisions necessary to protect workers, the general public, and property along the work in accordance with the Contract Documents.
- 1.6 Protection and/or replacement of existing property corner monuments.
- 1.7 Record drawings of the installed location of all underground electrical conduit, sewers, tees, wyes, laterals, etc.
- 1.8 Materials testing.
- 1.9 Reimbursement to Owner for costs of re-inspection or re-testing of any work not installed in compliance with the Contract Documents.
- 1.10 All new Portland cement concrete pavement, curb, drives, sidewalks, and ramps shall be sealed with SINAK S-102 in accordance with Section 321313.33, Portland Cement Concrete Sealing. The concrete shall be cured immediately after placement with a self-degrading curing compound such as WZ Strip™ Cure DR, Water Based Resin, or equal. All exposed areas to be treated shall be broomed and high pressure washed prior to application of the penetrating sealer.
- 1.11 All asphalt pavement will include 702.01 asphalt binders and 702.02 cutback asphalt in accordance with plan details, and is included in the price of other items.
- 1.12 All concrete utilized on this project: 1) All aggregate shall meet the requirements of ODOT 730.02, Loss, sodium sulfate soundness test, 12% maximum; 2) If #57 or #67 size coarse aggregate is used, it shall be tested in accordance with ASTM C 666, Procedure B, and meet the requirements of ODOT 703.13. copies of actual test reports and manufacturers certifications are required and shall be no more than 6 months old to time of submittal; 3) Class C concrete – Options 1, 2, and 3 will not be allowed; 4) All surfaces shall be sealed with an approved cure and seal, not standard ODOT curing compound.
- 1.13 Temporary work agreements.

PART 2 - ITEMS

All work proposed by this contract shall be quantified and paid for in accordance with the pertinent O.D.O.T. specification except as specifically altered by other provisions of this contract. ODOT 104.02 D., 611.04, 611.12, and 611.13 shall not apply to this project.

2.1 (SPC) BONDS AND INSURANCES, AS PER PLAN

Basis of Payment

A "Bonds and Insurances" item (including "Owner/Contractor Protective Policy," "All Risk Builder's Risk Insurance," and/or "Installation Floater Insurance", **and/or endorsements to fully comply with all contract requirements**) has been included in the bid proposal.

2.2 (SPC) PRECONSTRUCTION VIDEO DOCUMENTATION, AS PER PLAN

Basis of Payment

The lump sum price shall include all costs associated with hiring a professional videotaping firm to document in detail the existing conditions of the entire work area and potential disturbed areas and submitting a high quality DVD with audio commentary and video log.

2.3 (SPC) LAWN RESTORATION, AS PER PLAN

Basis of Payment

The lump sum price shall include furnishing and placement of topsoil, testing of topsoil, finish grading, seed, fertilizers, lime, water, maintenance, mowing, and all else necessary to establish a grass turf over all disturbed areas to be grassed.

2.4 (SPC) TEMPORARY SEDIMENT AND EROSION CONTROL, AS PER PLAN

Basis of Payment

The lump sum price shall include any and all labor, equipment, and materials including but not limited to straw bales, silt fence, check dams, silt ponds, and temporary seeding to provide sediment and erosion control commensurate with the Contractor's means, methods, work schedule, and in accordance with plan details and specifications, if any.

2.5 (202) PAVEMENT REMOVED, AS PER PLAN

The work, method of construction, and materials for pavement removed shall conform to ODOT Item 202.

Method of Measurement

The quantity of pavement removed, including associated curb, shall be measured in square yards of pavement removed. The measurement shall be based on the actual surface area of pavement removed, regardless of the presence of curb. No separate measurement or payment will be made for curb removal.

Basis of Payment

The unit price shall include compensation for excavation, removal and disposal of existing pavement and adjacent curb, including necessary saw cuts as required, backfill, lineal grading to establish positive drainage as directed, seeding and mulching, the furnishing and placing all materials, labor, tools, and equipment necessary to complete the work as specified or as shown in the Contract Drawings.

2.6 (SPC) CONCRETE APRON OR DRIVE REPLACEMENT, AS PER PLAN

Method of Measurement

The method of measurement shall be as per ODOT 253 or 255 as applicable with the exception that lengths used for calculation of each individual repair area shall not exceed the maximum pay length indicated on the drawings.

Basis of Payment

The basis of payment shall be as per ODOT 253 or 255 as applicable with the following additions:

The unit price shall also include saw cutting; furnishing, installation, maintenance, removal, and disposal of temporary road materials or temporary pavement courses; preparation for permanent pavement courses; furnishing and installing pavement joint filler, and any additional expenses for cold weather protection.

2.7 (611) 8" SANITARY SEWER, AS PER PLAN

2.8 (611) 22" SANITARY SEWER, AS PER PLAN

Method of Measurement

The quantity to be paid shall be the number of linear feet installed per the plans and specifications measured by the plan difference in horizontal distance between centerlines of manholes and/or inlets; centerline of mainline pipe for transverse sewers or laterals; ends of laterals; between ends of culvert pipe. Any increase in installed length due to change in length of pipe or location of structures not directed by the Engineer shall not be measured for payment. The depth for the various size sewers shall be measured from the invert to the proposed top of finished grade or top of pavement.

Basis of Payment

The unit price shall be irrespective of the depth of pipe and if not called out as a separate pay item shall include the furnishing and laying of pipe; field location, exploratory excavation, and verification of existing utilities prior to laying conduit; earth and/or rock excavation; sheeting; shoring; disposal of undesirable and excess material; underground water and/or surface water; bedding; compacted backfill material; Owner's costs related to re-inspection or re-testing of failed or re-compacted backfill material; specials; bends; tees; fittings; couplings; plugs; stoppers;

cleanouts; bulkheads; jointing material; protection of existing trees or vegetation to be saved; protection and/or replacement of all existing utilities unless specifically called for in contract documents as paid for separately; connection to existing conduit or structures; leakage testing; internal videotaping; Owner's costs related to re-inspection or re-testing of pipe failing leakage testing or internal videotaping; removal and replacement of poles, posts, signs, mailboxes, paper boxes, fences, landscape timbers, guardrails, sign wiring, fixtures, or other appurtenances; surface grading; temporary pavement; and the furnishing of all labor, materials, tools and appurtenances necessary to complete the work as specified or as shown.

2.9 (638) 6 INCH WATER MAIN DUCTILE IRON PIPE ANSI CLASS 52,
MECHANICAL JOINTS, AS PER PLAN

Method of Measurement

The measurement of ductile iron pipe water main of the size and class specified to be paid for shall be the horizontal projected length in feet installed complete, tested and ready for service, including fittings as measured along the centerline of the pipe through fittings from center to center and through valves. No measurement will be made for hydrant supply lines; No measurement will be made for the required bedding or backfill; payment will be included in the unit price stipulated for water main.

Basis of Payment

The unit price bid shall be full compensation for earth and/or rock excavation for the pipe and foundation for same, including clearing and grubbing, removal and disposal for all materials necessary for placing the pipe, remove and/or transplant existing trees and shrubs, including landscape features such as rocks and timbers as shown on plans; removal and replacement of all signs, mailboxes, paper boxes, fences, guardrails or other structures; furnishing and placing specified bedding, frostproofing, backfill and polywrap: sheeting and shoring to be left in place: furnishing, installing and operating necessary pumps, pipes and appurtenances necessary for flow bypassing and /or trench dewatering; furnishing and installing of the pipe, jointing material, plugs and clamps, tees, valves, bends, megalug joint restraint, steel casing with spacers, concrete; performing testing and disinfection, protection of all other existing utilities including repair if damaged by the contractor; removal and replacement of traffic control including furnishing and installing traffic compacted surface in sidewalk and driveways and the furnishing of all labor, tools, materials and equipment necessary to complete the work as specified or as shown.

2.10 (680) BYPASS PUMPING, AS PER PLAN

Basis of Payment

The lump sum price shall include all costs associated with temporary bypass pumping of the existing sanitary and storm sewer flows as necessary and for the duration required to perform the work as specified or as shown in the plans; bypass pumping equipment shall be of sufficient capacity to handle normal flows plus additional flows that may occur during inclement weather conditions, so as to not negatively impact construction; and, the furnishing of all labor, materials, tools, and appurtenances necessary to complete the work as specified or as shown.

2.11 (202) VAULT REMOVED, AS PER PLAN

Method of Measurement

The quantity to be paid is for the existing storm junction chamber (vault) to be removed in accordance with the plans to accommodate the culvert replacement work.

Basis of Payment

The unit price shall include the removal and proper disposal of existing storm catch basin structures from the project work area, in conformance with ODOT Item 202 and the price shall include furnishing of all labor, materials, and tools necessary to complete the work. The price shall be irrespective of the depth of the structure and if not called out as a separate pay item shall include; exploratory excavation, and verification of existing utilities prior to removal of structure; earth and/or rock excavation; shoring; disposal of undesirable and excess material, all pumping required for adequate handling of flow bypassing, underground water and/or surface water; bedding; compacted granular backfill; compacted backfill material; specials; couplings, seals, bends; tees; fittings; jointing material; protection of existing trees or vegetation to be saved; protection and/or replacement of all existing utilities; poles, posts, signs, mailboxes, paper boxes, fences, or other appurtenances; temporary pavement; and the furnishing of all labor, materials, tools and appurtenances necessary to complete the work as specified or as shown.

2.12 (611) 48 INCH SANITARY MANHOLE, AS PER PLAN

Method of Measurement

The number of each type of manhole to be paid for shall be the actual number furnished and built in place in accordance with the Mahoning County Sanitary Engineers Standard Detail, "Precast Manhole", as referenced in the plans.

Basis of Payment

The unit price bid for sanitary structures shall be irrespective of the depth of the manhole structures, and shall include the furnishing and construction in place of the manhole complete with excavation; foundation; backfill; frame and cover; steps; concrete; steel reinforcement; lining material; mortar; plastering; precast manhole sections; transition; flexible joints; granular backfill under proposed or existing pavements, walks, drives, existing drainage structures, and disposal of all undesirable material; testing and inspections; and the furnishing of all labor, materials, tools and appliances necessary to complete the work as specified or as shown.

2.13 (611) JUNCTION CHAMBER, AS PER PLAN

Method of Measurement

The quantity to be paid shall be the number of junction chambers installed per the plans and specifications.

Basis of Payment

The price per each shall include the quantity installed of new proposed concrete storm junction chamber. Price shall include the procurement and installation of all the necessary structure castings, lids/covers. Price shall also include providing a shop drawing submittal to the OWNER, with Ohio PE-Stamped structural calculations for engineer's review. Price shall include furnishing of all labor, materials, tools necessary to complete the work. The price shall be irrespective of the depth of the structure and if not called out as a separate pay item shall include; and verification of other existing utilities and coordination with utility providers for relocation of services prior to installation of the junction chamber; earth and/or rock excavation; sheeting; shoring; disposal of undesirable and excess material all pumping required for adequate handling of flow bypassing, underground water and/or surface water; bedding; compacted granular backfill; compacted backfill material; reconnection of existing storm sewer within the chamber, specials; couplings, seals, bends; tees; fittings; jointing material; coring of sewers; protection of existing trees or vegetation to be saved; protection and/or replacement of all existing utilities; removal and replacement of curbing, poles, posts, signs, mailboxes, paper boxes, fences, landscape timbers, landscaping, guardrails, sign wiring, fixtures, or other appurtenances; temporary pavement; and the furnishing of all labor, materials, tools and appurtenances necessary to complete the work as specified or as shown.

2.14 (611) 3.5' X 9' CONDUIT, TYPE A, 706.05, AS PER PLAN

The work, method of construction and materials for sewer construction shall be in accordance with ODOT Item 611 with the modifications shown on the improvement plans and detailed in the specifications.

Method of Measurement

The quantity of culvert to be paid for shall be determined for box culverts by actual number of linear feet along centerlines to the end of pipe at chamber connections, as per the lengths determined in the plans.

Basis of Payment

The per linear foot price for each box culvert specified shall be irrespective of depth and if not called out as a separate pay item, shall be full compensation for maintenance of traffic for the duration of the project; earth and/or rock excavation for the box culvert and foundation for same, including clearing and grubbing; removal of all materials necessary for placing the box culvert, the removal or grout filling of the existing storm sewers, manholes and catch basins except materials listed separately; furnishing and placing granular or concrete bedding and special backfill as required, testing of compaction, constructing and subsequently removing all necessary sheeting and shoring; furnishing, installing and operating necessary pumps, pipes and appurtenances necessary for flow bypassing and/or trench dewatering; sealing or banding all pipe joints where required; furnishing and installing of the pipe jointing materials and all necessary plugs, bends, fittings, specials and branches of a type at least equal to the conduit of which it becomes part; relocation of utilities; protection, verification and/or replacement of all existing utilities, i.e., gas mains gas connections water mains (including hydrants and their connections to the main), water connections, curb drains, catch basins, culverts, electric or telephone underground cables and/or underground connections if damaged by the Contractor;

protection of existing trees or vegetation; joining of the pipe to existing and proposed manholes (or chambers / structures), catch basins, structures, and other appurtenances as required whether temporary or permanent; internal videotaping; disposal of all surplus and unsuitable materials; furnishing and installing temporary stone trench topping of pavement and driveways; removal and replacement of poles, posts, signs, mailboxes, paper boxes, fences, landscape timbers, sign wiring, fixtures and other appurtenances; removal and replacement of any damaged curbing, sidewalk, driveways, parking lots and roadways as directed by the Engineer; and the furnishing of all labor, tools, materials and equipment necessary to complete the work as specified or as shown.

2.15 (611) CATCH BASIN, NO. 3A, AS PER PLAN

Method of Measurement

The method of measurement shall be the number of catch basins installed and connected to new and existing drainage infrastructure as shown on the plans.

Basis of Payment

The unit price shall be irrespective of the depth of catch basin and if not called out as a separate pay item shall include the furnishing and of setting catch basins and castings; field location; exploratory excavation, and verification of existing utilities prior to installing catch basins; earth and/or rock excavation; sheeting; shoring; disposal of undesirable and excess material, all pumping required for adequate handling of flow bypassing, underground water and/or surface water; bedding; compacted granular backfill; compacted backfill material; making connection including all material tools and labor to connect existing storm lines to the new structure (including up to 5 LF of pipe at each connection); seals, bends; tees; fittings; riser pipe; jointing material; coring of sewers; protection of existing trees or vegetation to be saved; protection and/or replacement of all existing utilities; removal and replacement of curbing, poles, posts, signs, mailboxes, paper boxes, fences, landscape timbers, guardrails, sign wiring, fixtures, or other appurtenances; temporary pavement; and the furnishing of all labor, materials, tools and appurtenances necessary to complete the work as specified or as shown.

2.16 (614) MAINTAINING TRAFFIC, AS PER PLAN

The work, method of construction and materials for maintaining traffic shall be in accordance with ODOT Item 614 and the Ohio Manual of Uniform Traffic Control Devices (OMUTCD).

Basis of Payment

The lump sum price shall include all costs for labor, materials, tools and appurtenances necessary to complete the work as specified. Payment shall be made progressively throughout the contract period in proportion to the percentage of work complete or as otherwise approved by the Engineer.

2.17 (624) MOBILIZATION

Basis of Payment

The lump sum (LS) price shall include all labor to transfer all equipment, materials, personnel, storage area, sanitary facilities, and incidentals to the project site as required to complete the project per plans and specifications

BID FORMS

The bid forms are not available online. The bid forms are available only by purchasing a set of plans and specifications at the location indicated in the Advertisement for Bids/Public Notice to Bidders.

SECTION 2
CONTRACT FORMS

NOTICE OF AWARD

TO: «ContractName»
«ContractAddr»
«ContractCity», «ContractState» «ContractZip»

PROJECT: «TitleCaps»

You are notified that your Bid which was opened on «Bidopening» has been accepted for items in the amount of «ContractDollars» at the unit bid prices as reflected in the bid tabulation contained herein for the *(fill in awarded parts, i.e. for Base Bid and Alternate C, or delete)*.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Bonds, Certificates of Insurance, and other documents within 10 calendar days from the date of receipt of this Notice.

Failure to comply with these conditions within the time specified will entitle Owner to consider your Bid in default, to annul this Notice and to declare your Bid Security forfeited.

The Owner will return to you one (1) fully signed set of the contract documents.

«OwnerCaps»

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

ACKNOWLEDGMENT

«ContractCAPName»

«ContractFirst» «ContractLast», «ContractTitle»

CONTRACT

FOR «TitleCaps»

THIS CONTRACT, made and entered into at «OwnerCity», «OwnerState», this _____ day of _____, 20____, by and between the «OwnerMuni» (“OWNER”), «OwnerState» and «ContractName» (“CONTRACTOR”).

WITNESSETH: That the said CONTRACTOR has agreed and by this presents does agree with the OWNER for the consideration hereinafter mentioned and contained, and under penalty expressed in a bond given with these presents, and herein contained or hereunto annexed, to furnish at its own cost and expense, all the necessary tools, equipment, materials, labor, and tests in an expeditious, substantial and workmanlike manner, the equipment and appurtenances herein contemplated, commencing work within 20 days from the date of the Notice to Proceed and executing the work within the time and in the manner specified and in conformity with the requirements set forth in this Contract.

The following form essential parts of the Contract (may vary with project).

1. Advertisement for Bids/Public Notice to Bidders
2. Instruction to Bidders
3. Bid Forms and Proposal
4. Contract Forms and Exhibits
5. Contract Bond – ORC 153.571 or ORC 153.57
6. Contract Provisions
7. General Conditions
8. Supplementary Conditions
9. Specifications
10. Specific Project Requirements
11. Prevailing Wage Rate Schedule
12. Contract Drawings; if any.
13. Addenda; if any.

The CONTRACTOR agrees and understands that the work on this contract shall be subject to the acceptance of the OWNER based upon and in accordance with the contract specifications and contract plans and drawings on file in the office of the OWNER.

The CONTRACTOR agrees that each individual employed by the CONTRACTOR or any Subcontractor and engaged in work on the project under this contract shall be paid by prevailing wage established by the Department of Industrial Relations of the State of Ohio or the U.S. Department of Labor (Davis-Bacon Act) as detailed in the section titled "Wage Rates." This shall occur regardless of any contractual relationship which may be said to exist between the Contractor or any Subcontractor and such individual. *(if a School District, delete this paragraph)*

The CONTRACTOR shall proceed with the said work in a prompt and diligent manner and shall do the several parts thereof. Further the CONTRACTOR shall complete the whole of said work in accordance with the specifications and contract drawings to the satisfaction of the OWNER on or before the time stated, and in default of completion within the time as fixed, the CONTRACTOR shall pay to the OWNER as liquidated damages, an amount equal to «Liquidated», for each and every day (Sundays and legal holidays excepted) the completion of the work may be delayed beyond the date fixed in the manner and as stipulated.

It is hereby mutually agreed that the OWNER is to pay and the CONTRACTOR is to receive, as full compensation for furnishing all materials and labor in building, constructing and testing and in all respect completing the herein described work and appurtenances in the manner and under the conditions herein specified, the prices stipulated in the proposal herein contained or hereto annexed and the total contract sum is «ContractDollars».

This Contract shall be in full force and effect from the date of execution by the OWNER and CONTRACTOR.

IN WITNESS WHEREOF: The OWNER and CONTRACTOR hereunto affixed their signature the day and year first mentioned above.

«ContractCAPName»

«ContractFirst» «ContractLast», «ContractTitle»

«OwnerCaps»

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

I hereby certify that funds in the amount of «ContractAmtwords» Dollars («ContractDollars») necessary for the foregoing Contract have been appropriated and are in the Treasury, or are in the process of collection, or are available through grants and/or loans from other funding sources.

«OwnerFiscalFirst» «OwnerFiscalLast», «OwnerFiscalTitle»

APPROVED AS TO FORM:

«OwnerLegalName», «OwnerLegalTitle»

**THE CONTRACTOR SHALL FURNISH THE FOLLOWING ITEMS
WITHIN 10 DAYS OF NOTIFICATION OF AWARD:**

- A) **CERTIFICATE OF INSURANCE FOR
CONTRACTOR'S PUBLIC LIABILITY INSURANCE POLICY
AND AUTOMOTIVE INSURANCE POLICY**
Owner, Verdantas LLC, CT Consultants, Inc., Named as Additional Insured

- B) **CERTIFICATE OF INSURANCE FOR
OWNER'S AND CONTRACTOR'S PROTECTIVE POLICY**
Owner Named as Insured (No Additional Insured)

- C) **CERTIFICATE OF WORKER'S COMPENSATION**

- D) **CONTRACT BOND THAT COMPLIES WITH ORC 153.54 AND 153.57**

* D above is not required if a bond complying with ORC 153.54 and 153.571 (rollover bond) was submitted at time of bid.

APPROVED SUBCONTRACTORS

PROJECT: «TitleCaps»

PRIME CONTRACTOR: «ContractName»

1. Name: _____
Address: _____
City/State/Zip: _____
Description of Work
to be Performed: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____
EIN# _____ Unique
Entity ID# _____

2. Name: _____
Address: _____
City/State/Zip: _____
Description of Work
to be Performed: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____
EIN# _____ Unique
Entity ID# _____

3. Name: _____
Address: _____
City/State/Zip: _____
Description of Work
to be Performed: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____
EIN# _____ Unique
Entity ID# _____

4. Name: _____
Address: _____
City/State/Zip: _____
Description of Work
to be Performed: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____
EIN# _____ Unique
Entity ID# _____

«OwnerCaps»

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

NOTICE TO PROCEED

Project: «Title»

Owner: «OwnerMuni»
«OwnerAddr»
«OwnerCity», «OwnerState» «OwnerZip»

To: «ContractName»
«ContractAddr»
«ContractCity», «ContractState» «ContractZip»

Date: _____

You are hereby notified to commence work in accordance with the Contract. All work shall be completed by «Completion_Date».

«OwnerCaps»

«OwnerCEOFirst» «OwnerCEOLast», «OwnerCEOTitle»

THE OWNER OR THEIR AUTHORIZED REPRESENTATIVE SHALL INSERT THE FOLLOWING CONTRACT DOCUMENTATION IN THE EXECUTED CONTRACT:

A) FINDINGS FOR RECOVERY – ORC 9.24
(<http://ffr.ohioauditor.gov/>)

B1) CHECK FOR DEBARRED CONTRACTORS IN THE STATE OF OHIO
(<https://www.sos.state.oh.us/records/debarred-contractors/>)

**B2) CHECK FEDERAL SAM (System for Award Management) for
FEDERAL FUNDING (including sub-contractors), (if applicable)**
(<https://www.sam.gov/SAM/>)

**C) NOTIFICATION OF SURETY AND AGENT OF CONSTRUCTION
CONTRACT AWARD – ORC 9.32 (if applicable)**

**D) NOTIFICATION TO UTILITY COMPANIES OF COMMENCEMENT
OF CONTRACT EXECUTION – ORC 153.64 (if applicable)**

SECTION 3
GENERAL CONDITIONS

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



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A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

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

2.03 Commencement of Contract Times; Notice to Proceed

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

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

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

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

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

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

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

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

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

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

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

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price

or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by

Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

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

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

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

- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property

insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery

against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and

- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or

other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all

court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor

shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all persons on the Site or who may be affected by the Work;
 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*
 - a. Submit number of copies specified in the General Requirements.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.
 2. *Samples:*
 - a. Submit number of Samples specified in the Specifications.
 - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Submittal Procedures:*
1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 6. any inspection, test, or approval by others; or
 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor,

Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
1. written notice thereof will be given to Contractor prior to starting any such other work; and
 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits

and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The

opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on

Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

- a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
- b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the

control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 Tests and Inspections

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.

- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and

equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the

Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or

- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or

- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities

pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SECTION 4
SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC C-700, 2007 ed.) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented herein or in the Specific Project Requirements remain in full force and effect.

SC-1.01 The terms used in these Supplementary Conditions which are defined in the General Conditions have the meaning assigned to them in the General Conditions.

SC-2.02 Delete paragraph 2.02(A) in its entirety and insert the following in its place:

Owner shall furnish one (1) printed/hard copy of the drawings and Project Manual which shall be an executed contract set and one set in electronic format (.pdf), if requested.

SC-2.03 (A) In the last sentence of 2.03A, change "sixtieth day" to "one hundred twentieth day."

SC-2.03 (B) By submission of a bid, the bidder hereby grants consent that the award and execution period shall be extended from sixty days to ninety days after the date on which the bids are opened.

SC-4.02(A) Change "Supplementary Conditions" to read "Specific Project Requirements."

SC-4.06(G) Delete paragraph 4.06(G) in its entirety.

SC-5.03(A)(1) The required Certificate of Insurance shall be in a form satisfactory to the Owner (most current version of ACORD 25 or approved equal). If the Contractor fails to procure and maintain any specified and/or required insurance, the Owner shall have the right to procure and maintain the said insurance for and in the name of the Contractor and the Contractor shall pay the cost thereof and shall furnish all necessary information to make effective and maintain such insurance.

SC-5.04(B)(1) Change "Supplementary Conditions" to read "Specific Project Requirements."

SC-5.04(B)(2) The limits of liability for the insurance required by paragraph 5.04(A) of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

All of the limits below may be satisfied with an Umbrella/Excess Liability as needed to increase the Primary Policy to required limits.

5.04(A)(1) and (2) Workers' Compensation, etc., under paragraphs 5.04(A)(1) and 5.04(A)(2) of the General Conditions:

- | | |
|--|-------------|
| (a) State | Statutory |
| (b) Applicable Federal (e.g., Longshoreman's): | Statutory |
| (c) Employer's Liability: | \$1,000,000 |

5.04(A)(3), (4) and (5). Contractor's Liability Insurance under paragraphs 5.04(A)(3) through 5.04(A)(5) of the General Conditions which shall also include completed operations and product liability coverage.

- (a) Bodily Injury and Property Damage, Combined Single Limit (CSL) (Except Products and Completed Operations) Property Damage liability insurance will provide Explosion, Collapse, and Underground coverage where applicable.

Each Occurrence	\$2,000,000
General Aggregate	\$4,000,000

- (b) Products and Completed Operations Aggregate \$1,000,000

Products and Completed Operations to be maintained for two (2) years after final payment and Contractor shall continue to provide evidence of such coverage to the Owner on an annual basis during the aforementioned period.

- (c) Personal and Advertising Injury (Per Person/Organization and per occurrence). \$1,000,000

- (d) Fire Damage \$100,000

- (e) If the General Liability Policy includes a General Aggregate, such policy shall be endorsed to have the General Aggregate Per Project Aggregate Limit.

5.04(A)(6) Automobile Liability - (Owned, Non-Owned, Hired)
Contractor may provide split limits or combined single limit.

- (a) Split Limits:

Bodily Injury,	Each Person:	\$2,000,000
	Each Occurrence	\$2,000,000
Property Damage,	Each Occurrence	\$1,000,000

or

- (b) Combined Single Limit

Bodily Injury and Property Damage,		
	Each Occurrence	\$2,000,000

SC-5.04(B)(3) Add the following to the end of the paragraph: “to the extent available in the insurance industry with industry standard exclusions and as allowed under the laws and regulations in the State of Ohio;”

SC-5.04(B)(4) Add the following:

Written notice of cancellation for non-payment of premium shall be at least 10 days.

Add the following section:

SC-5.04(C) Unless otherwise stated in Specific Project Requirements, the Contractor shall purchase and provide an "Owner's and Contractor's Protective Policy" with an immediate Effective Date and the **Owner listed as the Insured (No additional insureds)** for the following limits:

Each Occurrence	\$1,000,000
General Aggregate	\$2,000,000

Add the following section:

SC-5.04(D) Unless otherwise stated in Specific Project Requirements the Contractor shall purchase and maintain during the Contract Time "All Risk Builders' Risk Insurance," and/or "Installation Floater Insurance," and/or "Boiler and Machinery Insurance," and any and all insurance requirements of section GC-5.06 of the General Conditions as applicable for the type of work to be performed upon the Project to the full insurable value thereof for the benefit of the Owner, the Contractor, Subcontractors and Suppliers as their interest may appear. This insurance shall cover the work until final acceptance and final payment by the Owner. This provision shall in no way release the Contractor or Contractor's Surety from obligations under the Contract Documents to fully complete the Project. The original policy(s) shall be filed with the Owner or his designated representative.

SC-5.05 *Owner's Liability Insurance*

See SC-5.04(C) above.

SC-5.06 *Property Insurance*

Unless otherwise stated in Specific Project Requirements, the Contractor, not the Owner, shall purchase and maintain during the Contract Time all property insurance required in section GC-5.06 of the General Conditions and as outlined in SC-5.04(D) above.

Add the following section:

SC-6.02(C) The Contractor shall be responsible for the Owner and/or Engineer's additional inspection and administrative costs for work performed beyond regular working hours as defined in this Section.

SC-6.07(B) Delete paragraph 6.07(B) in its entirety.

SC-6.09 (D) Add the following:

D. The contractor agrees to the requirements of RC 153.59, RC 153.591, and RC 153.60.

Add the following section:

SC-6.10(B) Add the following:

Should the Owner be exempt from Ohio State Sales and Use Taxes on materials and equipment to be incorporated in the Project, the Contractor may obtain a waiver and said taxes shall not be included in the Contract Price.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the work
2. Owner's exemption to Contractor does not apply to construction tools, machinery, equipment, or other property by or leased by Contractor, or to supplies or materials not incorporated into the work.

The Contractor shall withhold and/or pay all consumer, use, property, employment, income and other taxes in accordance with the laws and regulations of the United States, State of Ohio, Owner and other applicable agencies which are applicable during the performance of the work.

SC-6.17 *Shop Drawings and Samples*

Add the following new paragraphs immediately after paragraph 6.17(E):

- F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three (3) submittals. Engineer will record Engineer's time for reviewing subsequent materials of shop drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.
- G. In the event that Contractor requests a substitution for a previously approved item, Contractor shall reimburse Owner for Engineer's charges for such time unless the need for such substitution is beyond the control of the Contractor.

SC-7.02 Delete Section 7.02 of the General Conditions in its entirety and insert the following:

SC-7.02(A) The General Construction Contractor shall be referred to and defined as the Construction Coordinator.

SC-7.02(B) Duties of the Construction Coordinator include the following:

1. Scheduling and coordinating the work of the Prime Contractors including submission and periodic updating of project schedule.
2. Establishing and administrating the site safety program and procedures for the project.
3. See that permits are applied for and obtained on a timely basis. Advise the Engineer of any problems related to permit approval.
4. Monitoring compliance with Laws and Regulations.
5. Maintain project site for dust, sedimentation, debris, waste, and general site cleanliness.
6. Coordinate location and use of temporary construction facilities including but not limited to sanitary, water, power, telephone, and parking.
7. Coordinate Owner interface for utility tie-ins/shut downs.
8. Monitor shop drawing submittal and coordination of submittal information between Prime Contractors.

SC-10.01 (A) Add the following:
The Owner may request from the Contractor and the Contractor shall provide within ten days of the request, a quote for all ordered changes in the work or work the Owner may be considering to be ordered. The quote shall be a line item, detailed, itemized breakdown of the work.

SC-11.01(A) For purposes of "Cost of the Work" delete Section 11.01(A), (B), and (C) of the General Conditions in their entirety and insert ODOT 109.05, in its place.

SC-13.07(A) In the First sentence of Section 13.07(A) remove "Substantial Completion" and insert "Final Acceptance of the entire project and final payment by the Owner."

SC-13.07(C) Remove 13.07(C) and replace with the following:

All materials and equipment shall be warranted by the respective material supplier or equipment manufacturer until the end of the Contractor's "correction period" (or longer if specified elsewhere in the contract) regardless of date of initial installation or operation of the material or equipment. The cost of such extended warranties as needed from material suppliers or equipment manufacturers to provide warranty coverage until the end of the "correction period" or other period as specified in the contract shall be the responsibility of the prime contractor and shall be assumed to have been included in his bid.

SC-14.02(A) (3) Delete Section 14.02(A) (3) of the General Conditions in its entirety and insert the following:

Until the job is Substantially Complete, the Contractor will be paid 96% of the estimated value of labor and 100% of the estimated value of material installed and completed in acceptable form. Upon the Owner's agreement that the project is Substantially Complete, the 4% Retainage on labor may be reduced to the value needed to assure completion of the remaining punch list work subject to the recommendation of the Engineer and the approval by the Owner.

Add the following section:

SC-14.02(A) (4)

Payment for stored materials at invoice prices or at the unit price bid for materials, or the lesser value of the two, will be made for accepted nonperishable equipment and materials which are to be incorporated into the work, when accepted, delivered, properly stored, and protected upon the site and verified to the Engineer by a copy of the invoice. For materials and equipment meeting the foregoing conditions, the Owner will pay, when properly included in an approved estimate, 92% of the invoice value of the same. Subsequent to the inclusion of a payment for delivered materials in a progress payment, Contractor shall submit no later than the next payment submission, a partial waiver of lien from each and every supplier for whom delivered materials were paid. If no such waiver is submitted prior to or along with the next payment, the amount of delivered materials paid commensurate with that particular item will be deducted from future payments. No payment for delivered materials shall be made for any items that are scheduled to be incorporated in the work within 30 days of submission of the pay estimate. Delivered materials will not be paid in any given month for a total amount less than \$5,000.00. Payment for delivered materials for such items as pipe backfill and roadway subbase will not be routinely considered.

SC-16.01 Delete Article 16 in its entirety and replace with the following:

10/17

ARTICLE 16 - DISPUTE RESOLUTION AGREEMENT - MEDIATION/ARBITRATION

OWNER and CONTRACTOR hereby agree that Article 16 of the General Conditions to the Agreement between OWNER and CONTRACTOR is amended to include the following agreement of the parties:

- 16.01 All claims, disputes, and other matters in question between OWNER and CONTRACTOR arising out of or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by paragraph 14.09) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining, subject to the limitations of this Article 16. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this Article 16 will be specifically enforceable under the prevailing law of any court having jurisdiction.
- 16.02 No demand for arbitration of any claim, dispute, or other matter that is required to be referred to Engineer initially for decision in accordance with paragraph 9.09 will be made until the earlier of (a) the date on which ENGINEER has rendered a written decision or (b) the thirty-first day after the parties have presented their evidence to ENGINEER if a written decision has not been rendered by ENGINEER before that date. No demand for arbitration of any such claim, dispute or other matter will be made later than thirty days after the date on which ENGINEER has rendered a written decision in respect thereof in accordance with paragraph 9.08 and the failure to demand arbitration within said thirty days' period will result in Engineer's decision being final and binding upon OWNER and CONTRACTOR. If ENGINEER renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned. No demand for arbitration of any written decision of ENGINEER rendered in accordance with paragraph 9.08 will be made later than ten days after the part making such demand has delivered written notice of intention to appeal as provided in paragraph 10.05.
- 16.03 Notice of the demand for arbitration will be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to ENGINEER for information. The demand for arbitration will be made within the thirty-day or ten-day period specified in paragraph 16.02 as applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.
- 16.04 Except as provided in paragraph 16.05 below, no arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity (including ENGINEER, ENGINEER's Consultant, and the officers, directors, agents, employees, or consultants of any of them) who is not a party to this contract unless:

- (A) the inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration, and
- (B) such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and
- (C) the written consent of the other person or entity sought to be included and of OWNER and CONTRACTOR has been obtained for such inclusion, which consent shall make specific references to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.

16.05 Notwithstanding paragraph 16.04 if a claim, dispute or other matter in question between OWNER and CONTRACTOR involves the Work of a Subcontractor, either OWNER or CONTRACTOR may join such Subcontractor as a party to the arbitration between OWNER and CONTRACTOR herein under. CONTRACTOR shall include in all subcontracts required by paragraph 6.06(G) a specific provision whereby the Subcontractor consents to being joined in an arbitration between OWNER and CONTRACTOR involving the Work and such Subcontractor. Nothing in this paragraph 16.05 nor in the provision of such subcontract consenting to joinder shall create any claim, right or cause of action in favor of Subcontractor and against OWNER, ENGINEER, or ENGINEER's Consultants that does not otherwise exist.

16.06 The award rendered by the arbitration will be final, judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal.

16.07 OWNER and CONTRACTOR agree that they shall first submit any and all unsettled claim, counterclaims, disputes and other matters in questions between them arising out of or relating to the Contract Documents or the breach thereof ("disputes"), to mediation by the American Arbitration Association under the Construction Industry Mediation Rules of the American Arbitration Association prior to either of them initiating against the other a demand for arbitration pursuant to paragraphs 16.01 through 16.06, unless delay in initiating arbitration would irrevocably prejudice one of the parties. The respective thirty and ten-day time limits within which to file a demand for arbitration as provided in paragraphs 16.02 and 16.03 above shall be suspended with respect to a dispute submitted to mediation within those same applicable time limits and shall remain suspended until ten days after the termination of the mediation. The mediator of any dispute submitted to mediation under this Agreement shall not serve as arbitrator of such dispute unless otherwise agreed.

SECTION 5
SPECIFICATIONS

SECTION 011100 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 LOCATION OF THE PROJECT

- A. The project is located at Erskine Avenue in Boardman Township, Mahoning County, Ohio.

1.2 PROJECT DESCRIPTION

- A. The bid documents contain bid forms for 1 contract.
- B. This Project consists of a Base Bid with two (2) alternates for the Contractor to bid on. The Contractor is required to submit the base bid and both of the alternates as part of their bid package. The scope of work involves replacing a culvert crossing on Erskine Avenue in Boardman Township, Ohio. Work generally includes replacement of the culvert and storm junction chambers; installation of new storm sewers, catch basins, & sanitary sewers; waterline lowering, and site restoration. The alternates consist of reconstructing the roadway using either asphalt pavement (Alt A1) or concrete pavement (Alt A2).
- C. The Contractor shall coordinate utility relocations w/ the respective utility companies.
- D. The Contractor shall give special care to bedding and backfilling any excavations, and in particular to support proper roadway reconstruction so as to avoid any unnecessary future subsidence and cracking of the to be reconstructed section of roadway.
- E. If AC Pipe is encountered, it shall be removed per the drawing notes and by taking proper environmental precautions, and payment shall be made by negotiated change order.

1.3 SPECIFICATIONS

- A. In general, these Specifications describe the work to be performed by the various trades, other than work specifically excluded. It shall be the responsibility of the Contractor and Subcontractors to perform all work incidental to their trade, whether or not specific mention is made of each item, unless such incidentals are included under another Item.
- B. It is advised that the Contractor and all Subcontractors familiarize themselves with the contents of the complete Specifications, particularly for the trades preceding, following, related or adjacent to their work.

1.4 DRAWING SCHEDULE

- A. The work to be done under this Contract is shown on the following Drawings:

<u>Title</u>	<u>Sheet No.</u>
Cover Sheet	1
Legends Symbols & Sheet Index	2
General Notes	3
Existing Conditions and Demo Plan	4

Plan and Profile	5
Construction Details	7-9
SWPPP Notes	10
SWPPP Details	11-12

END OF SECTION 011100

SECTION 011419 – USE OF SITE

PART 1 - GENERAL

1.1 GENERAL

- A. The Contractor will be allowed the use of as much of the site designated for the improvements as is necessary for his operation.

1.2 USE OF STREETS

- A. During the progress of the work, the Contractor shall make ample provisions for both vehicle and pedestrian traffic on any public street and shall indemnify and save harmless the Owner from any expense whatsoever due to their operations over said streets. The Contractor shall also provide free access to all the fire hydrants, water, and gas valves located along the line of his work. Gutters and waterways must be kept open or other provisions made for the removal of storm water. Street intersections may be blocked only one-half at a time, and the Contractor shall lay and maintain temporary driveways, bridges and crossings, such as in the opinion of the Engineer are necessary to reasonably accommodate the public.
- B. In the event of the Contractor's failure to comply with these provisions, the Owner may cause the same to be done, and may deduct the cost of such work from any monies due the Contractor under this Agreement, but the performance of such work by the Owner at its instance shall serve in no way to release the Contractor from his general or particular liability for the safety of the public or the work.
- C. The Contractor shall repair at no cost to the Owner, all existing roads, parking areas, grassed areas that are damaged due to the execution of his work. The Contractor shall remove daily all mud, soil and debris that may be tracked onto existing streets, drives, or walks by his equipment or that of subcontractors or suppliers.

1.3 CLOSING STREETS TO TRAFFIC

The Contractor may with the approval of the Engineer, close streets, or parts of streets, to vehicular traffic. The streets are to remain closed as long as the construction work or the condition of the finished work requires or as determined by the Engineer. The Engineer shall be the judge of how many streets or parts of streets it is necessary for the Contractor to close at any time, and may refuse to permit the closing of additional streets to traffic until the majority of the work on the closed streets is completed and they are opened to traffic. Refer to the plan sheets and MOT notes for specific details of anticipated road closures.

1.4 RIGHTS-OF-WAY

- A. Whenever it is required to perform work within the limits of public or private property or in rights-of-way, such work shall be done in conformity with all agreements between the Owner and the owners of such. Care shall be taken to avoid injury to the premises entered, which premises shall be left in a neat and orderly condition by the removal of

rubbish and the grading of surplus materials, and the restoration of said public or private property to the same general conditions as pertained at the time of entry for work to be performed under this contract. Any work on private property not authorized by easement will be done at the risk of the Contractor. Contractors is responsible for coordinating with property owners to acquire temporary work agreements if necessary.

- B. The Contractor shall not (except after consent from the proper parties) enter or occupy with men, tools or equipment, any land outside the rights-of-way or property of the Owner.
- C. When the Contractor performs construction within 10 ft. of a right-of-way or easement line, he shall place tall stakes properly identified at points of change in width or direction of the right-of-way or easement line and at points along the line so that at least two stakes can be seen distinctly from any point on the line.

1.5 EASEMENTS

- A. No easements have been obtained for the project work.
- B. When working under work agreements obtained by the Contractor, care shall be taken to avoid injury to the premises entered, which premises shall be left in a neat and orderly condition by the removal of rubbish and the grading of surplus materials, and the restoration of said public or private property to the same general conditions as pertained at the time of entry for work to be performed under this contract.

1.6 PROTECTING EXISTING BUILDINGS, STRUCTURES AND ROADWAYS

- A. The Contractor shall, at his own expense, shore up and protect any buildings, roadways, utilities or other public or private structures which may be encountered or endangered in the prosecution of the work, and that may not be otherwise provided for, and he shall repair and make good any damages caused to any such property by reason of his operations. All existing fences removed due to the prosecution of the work shall be replaced by the Contractor. No extra payment will be made for said work or material, but the cost of this work must be included in the price stipulated for the work to be done under this contract. See plans for any more specific details regarding utility conflicts and resolutions.

1.7 SITE FACILITIES

- A. The Contractor shall furnish and place sufficient quantities of portable toilet facilities at locations convenient for use by the Contractor's personnel, Subcontractors, the Engineer, and the Owner.

1.8 RESTORATION

- A. The contractor shall restore all areas per the plans and specifications and if not specified, at least to the condition existing prior to the start of work.

SECTION 011423 - ADDITIONAL WORK, OVERTIME

PART 1 - GENERAL

1.1 NIGHT, SUNDAY AND HOLIDAY WORK

- A. No work will be permitted at night, Sunday or legal holidays except as noted on the plans or in the case of emergency and then only upon written authorization of the Engineer.

END OF SECTION 011423

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
 - 1. Selected materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Unit-cost allowances.
 - 3. Contingency allowances.
 - 4. Inspection and testing allowances.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Modification Procedures" specifies procedures for submitting and handling Change Orders.
 - 2. Division 1 Section "Quality Control Services" specifies procedures governing the use of allowances for inspection and testing.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise the Architect of the date when the final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At the Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by the Architect from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show the actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.5 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed for the Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. The Contractor's related costs for products and equipment ordered by the Owner under the contingency allowance are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to the Owner by Change Order.

1.6 INSPECTION AND TESTING ALLOWANCES

- A. Inspection and testing allowances include the cost of engaging the inspection or testing agencies, the actual inspections and tests, and reporting the results.
- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting upon failure of previous tests and inspections.
- C. Costs of services not required by the Contract Documents are not included in the allowance.
- D. At Project closeout, credit unused amounts remaining in the inspection and testing allowance to Owner by Change Order.

1.7 UNUSED MATERIALS

- A. Return unused materials to the manufacturer or supplier for credit to the Owner, after installation has been completed and accepted.
 - 1. When requested by the Architect, prepare unused material for storage by Owner where it is not economically practical to return the material for credit. When directed by the Architect, deliver unused material to the Owner's storage space. Otherwise, disposal of unused material is the Contractor's responsibility.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly upon delivery for damage or defects.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1:
- B. Allowance No. 2:
- C. Allowance No. 3:
- D. Allowance No. 4:
- E. Allowance No. 5:

END OF SECTION 012100

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing Alternates.

1.3 DEFINITIONS

- A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

- 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.
- B. Notification: Immediately following the award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other Work of this Contract.

- D. Schedule: A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1: Replace existing roadway pavement with Asphalt Pavement.
- B. Alternate No. 2: Replace existing roadway pavement with Concrete Pavement.

END OF SECTION 012300

SECTION 012513 – PRODUCT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 MATERIALS AND EQUIPMENT

- A. In the specifications and on the Engineer's drawings, are specified and shown certain pieces of equipment and materials deemed most suitable for the service anticipated. This is not done to eliminate other equipment and materials equally as good and efficient. The Contractor shall prepare his bid on the particular materials and equipment specified. Following the award of the contract, should the Contractor desire to use other equipment and materials, he shall submit to the Owner a written request for such change and state the advantage to the Owner and the savings or additional cost involved by the proposed substitution. The determination as to whether or not such change will be permitted rests with the Owner and the Engineer.
- B. Each major item of equipment shall be inspected by a manufacturer's representative during installation and upon completion of the work. The Contractor shall supply the Engineer with a certificate of such inspection.

END OF SECTION 012513

SECTION 013119 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRECONSTRUCTION MEETING

- A. Prior to the Contractor beginning any work on the project, the Owner will schedule and hold a preconstruction meeting to discuss all aspects of the contract work.
- B. The Contractor shall be present and be prepared to comment in detail on all aspects of his work.
- C. The Contractor shall bring to the preconstruction meeting a proposed construction progress schedule, erosion control plan, quality control program, concrete mix designs, asphalt mix designs (JMF), etc. Approval of each by the Engineer is required prior to the start of any work.
- D. Included in the construction progress schedule shall be an implementation sequence of the proposed erosion control efforts required by the contract.

1.2 PROGRESS MEETINGS

- A. Monthly progress meetings will be held at a location to be determined by the Owner on a regularly scheduled day mutually convenient to the Owner, Contractor, and Engineer.
- B. The Contractor shall provide an updated construction progress schedule and be prepared to comment in detail on all aspects of his work.

END OF SECTION 013119

SECTION 013216 – CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 PROGRESS SCHEDULE

- A. Immediately after signing the Contract, the General Construction Contractor shall prepare a graphic progress schedule, indicating the work to be executed during each month and the rate of expected progress to secure completion on the agreed-upon completion date. The progress schedule shall be approved by the Engineer and Owner prior to starting work on the site. Copies of such graphic progress charts, upon which has been indicated the actual progress, shall be furnished to the Engineer with each requisition for payment.

This progress schedule must follow these general time frames (may vary with project):

1. Chip seal, paving fabric and/or the leveling course must start within 7 calendar days from the date of milling.
 2. Casting adjustments and/or curb replacements must start within 7 calendar days from the completion of the chip seal, intermediate course and/or fabric.
 3. Surface course asphalt concrete must begin installation within 7 calendar days from the completion of the casting adjustments and/or curb replacement.
 4. Traffic paint, temporary or permanent must be installed within a time period as deemed adequate and desirable for each location.
- B. Should the rate of progress fall materially behind the scheduled rate of progress, and unless the delay is authorized by the Engineer, each offending Contractor shall furnish additional labor, work overtime, or take other necessary means required for completion of the work on the scheduled date. No additional compensation beyond the set Contract price shall be paid for action taken or overtime expense incurred in maintaining scheduled progress.

END OF SECTION 013216

SECTION 013223 – SURVEY AND LAYOUT DATA

PART 1 - GENERAL

1.1 STAKING

- A. The Contractor shall hire a surveyor licensed in the state the work is to be installed to provide all reference points not already established and staking. The Contractor shall protect and preserve the established staking and reference points as long as required for installation of the work and field verifications by any party. The Contractor's surveyor shall replace and accurately relocate all staking and reference points so lost, destroyed or moved.

1.2 LAYOUT OF WORK

- A. The Contractor shall lay out his work and be responsible for correct locations, elevations and dimensions of all work executed by him under this Contract. The Contractor must exercise proper precautions to verify the figures shown on the Drawings before laying out the work and will be held responsible for any error resulting from his failure to exercise such precaution. The Contractor shall insure the new construction aligns with any existing work.

END OF SECTION 013223

SECTION 013236 – VIDEO MONITORING AND DOCUMENTATION

PART 1 - GENERAL

1.1 SCOPE

- A. Provide all labor, materials, equipment, and services, and perform all operations necessary to furnish to the Owner a complete color audio-video record on a USB Flash Drive of the surface features within the proposed construction zone of influence. This record shall include, but not be limited to, all audio-video USB Flash Drives, storage cases, video logs, and indexes. The purpose of this coverage shall be to accurately document the pre-construction condition of these surface features.

1.2 QUALIFICATIONS

- A. The color audio-video documentation shall be done by a responsible commercial firm known to be skilled and regularly engaged in the business of pre-construction color audio-video documentation. The firm shall furnish such information as the Owner deems necessary to determine the ability of that firm to perform the work in accordance with the Contract specifications.

1.3 PRODUCTS

- A. The color audio-video recording delivered to the Owner shall be on a high-quality USB Flash Drive.

END OF SECTION 013236

SECTION 013319 - FIELD TEST REPORTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes, but is not limited to, services performed by a testing laboratory. Laboratory services covered under this section are for testing materials used for field constructed elements of the work. Performance testing of manufactured items and shop fabricated materials shall be covered under their respective specification section.
- B. All testing performed under this item shall be for the protection and benefit of the Owner and shall not be construed by the Contractor as a comprehensive quality control program intended to protect the Contractor, his subcontractors, or his suppliers. The testing frequency and types of testing shall be as scheduled herein.
- C. Inspections, tests, and related actions specified in this section and elsewhere in the contract documents are not intended to limit the Contractor's own quality control procedures and testing, which facilitate overall compliance with requirements of the contract documents. Requirements for the Contractor to provide quality control services as required by the Engineer, the Owner, governing authorities, or other authorized entities are not limited by the provisions of this Section.
- D. The Contractor is required to cooperate with the testing laboratories performing required inspections, test, and similar services and the Engineer or his representative.
- E. Materials and installed work may require testing or retesting at any time during progress of work. Retesting of rejected materials or installed work shall be done at Contractor's expense.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 1 Specifications sections, apply to work of this section.
- B. The Contract Documents may include testing requirements furnished under other Sections. Work elements which may include other testing requirements are:
 - 1. Water distribution systems.

2. Storm sewer systems.
3. Sanitary sewer systems.

1.3 SELECTION AND PAYMENT

- A. The Contractor will employ an independent testing laboratory to perform specified testing. Payment shall be incidental to the related work bid item. The laboratory shall be mutually agreed upon by the Owner, Engineer, and Contractor.
- B. Employment of testing laboratory in no way relieves the Contractor of the obligation to perform work in accordance with requirements of the contract documents.
- C. The testing laboratory and their personnel shall be under the direction of the Engineer's on-site representative, regardless of who employs their services.

1.4 REFERENCES

- A. AASHTO T-19, Standard Method of Test for Unit Weight and Voids in Aggregate.
- B. AASHTO T-37, Standard Method of Test for Sieve Analysis of mineral Filler for Road and Paving Materials.
- C. AASHTO T-230, Standard Method of Test for Determining Degree of Pavement Compaction of Bituminous Aggregate Mixtures.
- D. ASTM C-29, Standard Method of Test for Unit Weight and Voids in Aggregate.
- E. ASTM C-31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
- F. ASTM C-33, Standard Specification for Concrete Aggregates.
- G. ASTM C-39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- H. ASTM C-40, Test Method for Organic Impurities in Fine Aggregates for Concrete.
- I. ASTM C-42, Standard Test Methods for Obtaining and Testing Drilled Cored and Sawed Beams of Concrete.
- J. ASTM C-88, Standard Test Method for Soundness of Aggregate by use of Sodium Sulfate or Magnesium Sulfate.
- K. ASTM C-94, Standard Specification for Ready-Mixed Concrete.

- L. ASTM C-117, Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing.
- M. ASTM C-136, Standard Method for Sieve Analysis of Fine and Course Aggregate.
- N. ASTM C-142, Test Method for Clay Lumps and Friable Particles in Aggregate.
- O. ASTM C-143, Standard Test Method for Slump of Hydraulic Cement Concrete.
- P. ASTM C-172, Standard Practice for Sampling Freshly Mixed Concrete.
- Q. ASTM C-173, Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- R. ASTM C-231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
- S. ASTM C-535, Standard Test Method for Resistance to Degradation of Large-Size Course Aggregate by Abrasion and Impact in the Los Angeles Machine.
- T. ASTM C-1064, Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete.
- U. ASTM D-698, Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb. (2.49-kg) Rammer and 12-inc. (305-mm) Drop.
- V. ASTM D-2487, Standard Test Method for Classification of Soils for engineer purposes.
- W. ASTM D-2940, Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports.
- X. ASTM D-4253, Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
- Y. ASTM D-4254, Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
- Z. ASTM D-4832, Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders.
- AA. ODOT Supplement 1021, Method of Test for Determination of the Percent of Fractured Pieces in Gravel.
- AB. ODOT Supplement 1029, Method of Test for Determining the Percentage of Deleterious Materials in Course Aggregate.

- AC. ODOT Supplement 1036, Method of Test for Determination of Percent Air Voids in Compacted Dense Bituminous Paving Mixtures.
- AD. ODOT Supplement 1044, Mix Design Method for Bituminous Aggregate Base.
- AE. Uni-Bell PVC Pipe Association UNI-B-6-98 for Low Pressure Air Testing of Installed Sewer Pipe.
- AF. ASTM – C969 – Standard practice for infiltration and exfiltration acceptance of installed concrete sewer pipe.

1.5 SUBMITTALS

- A. Prior to the start of work, submit testing laboratory name, address, and telephone number, and names of full-time specialist and responsible officer.
- B. Submit copy of the testing laboratory's evaluation report issued by one of the evaluation authorities identified in Article 1.6 of this Section with memorandum of remedies of any deficiencies reported by the inspection.
- C. Submit the chain of custody and other QA/QC procedures for each test to be utilized by the laboratory.
- D. Submit a sample test report for review by the Engineer to demonstrate conformance with Article 3.2 herein.

1.6 QUALITY ASSURANCE

- A. Except as otherwise indicated, the testing laboratory engaged shall be prequalified by the Ohio Department of Transportation for the types of services specified herein.
- B. The field personnel utilized to perform all field-testing and preparation shall be certified for those tests being performed.

1.7 RESPONSIBILITIES

- A. Testing Laboratory Responsibilities:
 - 1. Provide qualified personnel at the site. Cooperate with the Engineer and Contractor in performance of services.
 - 2. Perform specified sampling and testing of products in accordance with the specified standards.
 - 3. Ascertain compliance of materials and mixes with requirements of the contract documents.

4. Immediately notify the Engineer and Contractor of observed irregularities or nonconformance of work or products.
 5. Perform additional tests required by the Engineer.
 6. Testing personnel are to report to the Engineer or his representative upon arrival on site for instructions and requirements. Prior to leaving the site, furnish the Engineer or his representative all test results whether in a formal or informal format.
 7. Attend preconstruction meetings and progress meetings.
- B. Contractor Responsibilities:
1. Provide access to materials proposed to be used which require testing.
 2. Cooperate with laboratory 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.
 - b. To obtain and handle samples at the site or at the source of products to be tested.
 - c. To facilitate tests.
 - d. To provide storage and curing of test samples as required by the testing laboratory.
 4. Notify the Engineer and laboratory 24 hours prior to expected time for operations requiring testing services for scheduling purposes. Materials will not be permitted to be placed without the proper testing being performed in conformance with this Section.

1.8 LIMITS OF LABORATORY AUTHORITY

- A. The laboratory may not release, revoke, alter, or enlarge the requirements of the contract documents.
- B. The laboratory may not approve or accept any portion of the work.
- C. The laboratory may not assume any duties of the Contractor.
- D. The laboratory has no authority to stop the work.

1.9 SCHEDULE OF TESTS

Testing anticipated on this project shall include, but is not limited to:

A. Earthwork

1. Special backfill material sieve analysis per ASTM C-136, one test per source.
2. On-site trench backfill analysis per ASTM D-2487, as directed by Engineer.
3. Pipe bedding and cover sieve analysis per ASTM C-136, one test per source.
4. Drainage fill sieve analysis per ASTM C-136, one test per source.
5. Soil compaction per ASTM D-698.
 - a. Embankment testing shall be at least one (1) test/5,000 S.F. of each lift;
 - b. Trench backfill testing shall be at least one (1) test/50 L.F. of each lift;
 - c. Subgrade and/or subbase testing shall be at least one (1) test/200 L.F. of pavement or 5,000 S.F. of slabs subject to greater frequency due to soil conditions or Engineer's direction.
6. Backfill compaction per ASTM D-4253 and D-4254, one test per 50 L.F. of each lift.
7. Low Strength Mortar testing per ASTM D-4832.

B. Concrete

1. Concrete aggregate deleterious substances per ASTM C-40, ASTM C-117, and ASTM C-142, one test per source.
2. Concrete aggregate abrasion per ASTM C-535, one test per source.
3. Sodium sulfate soundness of coarse aggregate per ASTM C-88, one test per source.
4. Sampling Fresh Concrete: ASTM C-172, except modified for slump to comply with ASTM C 94.
 - a. When cylinders and/or beam samples are made, the slumps and air test shall be made using concrete from the same batch.

- b. Slump: ASTM C-143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
- c. Air Content: ASTM C-173, volumetric method of lightweight concrete; ASTM C-231 pressure method for normal weight concrete; at least one for each pour of each type of air-entrained concrete, and each time a set of compression test specimens is made.
- d. Concrete Temperature: ASTM C-1064, test hourly when air temperature is 40° F. (4° C.) and below, and when 80° F. (27° C.) and above; and each time a set of compression test specimens is made.
- e. Compression Test Specimen: ASTM C-31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
- f. Compressive Strength Tests: ASTM C-39; one set for each day's pour exceeding 5 cubic yards plus additional sets for each 50 cubic yards over and above the first 25 cubic yards of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required. A strength test shall be the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days.
 - i. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
 - ii. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive strength by more than 500 psi.
- g. Two (2) tests beams shall be made for each 250 square yards of concrete pavement and/or slabs on grade placed.
 - i. For traffic to be allowed on pavement or slab, the modulus of rupture shall be a minimum of 600 psi for Class C concrete or 400 psi for ODOT Class MS or FS.

- d. Acceptance testing shall be performed with a non-adjustable “go, no-go” mandrel with a minimum of eight (8) contact points. Adjustable mandrels for acceptance testing shall be used only with permission of the Engineer.
- e. The mandrel size shall be ninety-five (95) percent of the average inside diameter for the size and class of pipe specified.
- f. If the "go, no-go" mandrel will not pass through a section of pipe a deflector or adjustable mandrel may be used to determine the extent and/or severity of the non-acceptable area. A “go, no-go” mandrel shall be re-run through the pipe section for final acceptance testing at no additional cost to the Owner.
- g. The Contractor or subcontractor performing the test shall be experienced and qualified to perform deflection testing with the equipment and procedures utilized. The contractor shall provide all labor, materials, tools and equipment necessary to clean and test all sections of sewer pipe, locate deficient areas, repair, deficient areas, and retest all repaired areas.
- h. All sewer runs shall be cleaned prior to testing.
- i. The acceptance test shall be performed without mechanical pulling devices.
- j. All pipe failing the deflection test shall be exposed, repaired or replaced and retested at no additional cost to the Owner.

2. Leakage Testing

- a. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- b. The Contractor shall perform sufficient tests to determine that the installation of all pipe materials have been as specified and that test results are in accordance with those required for approval of the installation.
- c. The Contractor shall furnish all pressure gauges, suitable pump or pumps, pipes, test heads, and any other apparatus and materials used for these tests. These tests are to be considered as part of the work, and no additional compensation shall be made.

- d. The tests shall be conducted under the direction of the Engineer or an appointed agent. Any testing done without direction and supervision as specified shall not be considered as a proper means of approval.
- e. The Contractor may obtain water for testing as may be required by observing the rules and regulations enforced in the municipality in which the work is being done.
- f. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

3. Infiltration and Exfiltration Testing

- a. All sewers shall be tested using an exfiltration test or, where specifically allowed in writing by the Engineer, an infiltration test.
- b. All sewers shall be tested. No visible leakage in the sewers or manholes shall be permitted.
- c. Bulkheads shall be used to isolate the test sections as required to perform the work. All service laterals, stubs and fittings shall be plugged or capped at the connection to the test section.
- d. Each manhole run shall be tested separately.

4. Exfiltration Testing

- a. The test shall be performed first with a minimum head of water of three (3) feet above the top of the high end of the sewer or two (2) feet above the high end of the highest lateral in the section or sections to be tested, or three (3) feet above the existing groundwater elevation, whichever is higher.
- b. The exfiltration test shall be conducted between two manholes by sealing the downstream end of the test section and all inlet sewers at the upstream manhole with pipe stoppers.
- c. The average internal pressure in the system shall not exceed 11.6 feet of water or 5 psi and the maximum internal pipe pressure at the lowest end shall not exceed 23 feet of water or 10 psi.
- d. Water shall be added to the pipe section at a steady rate from the upstream manhole to allow air to escape from the sewer until the water is at the specified level above the crown of the pipe. The water may stand in the pipe and manhole up to seventy-two (72) hours

prior to measurement of leakage to allow for absorption by the pipe and bleeding of air. After absorption into the pipe and manhole has stabilized, the water in the upstream manhole shall be brought to test level.

- e. The leakage rate shall be determined by measurement of the drop in water elevation measured in the upstream manhole and the loss of water calculated. The test period shall be a minimum of sixty (60) minutes duration. Use the following table to determine loss of water as measured in the manhole:

Water Level Change in Test Manhole		Volume of Leakage	
		4 Ft. Dia. MH	5 Ft. Dia. MH
(Inches)	(Feet)	(Gals.)	(Gals.)
1/8	0.01	0.98	1.53
1/4	0.02	1.96	3.06
3/8	0.03	2.94	4.59
1/2	0.04	3.92	6.12
5/8	0.05	4.90	7.65
3/4	0.06	5.87	9.18
7/8	0.07	6.85	10.71
1	0.08	7.83	12.24
1-1/8	0.09	8.81	13.77
1-1/4	0.10	9.79	15.30
1-3/8	0.11	10.77	16.83
1-1/2	0.12	11.75	18.36
1-5/8	0.13	12.72	19.89
1-3/4	0.14	13.71	21.42
1-7/8	0.16	14.69	22.90
2	0.17	15.67	24.48

5. Infiltration Testing

- a. An infiltration test shall be conducted for all sections of sewer, only when the ground water level is two (2) feet or more above the elevation of the inside crown of pipe at the upstream limit of the section being tested.
- b. The use of well point pumps or other dewatering devices shall have been discontinued for 24 hours prior to testing to permit the groundwater table to return to a static condition.
- c. The leakage rate shall be measured by a weir, by determination of the time required to fill a container of known volume, or other measuring device approved by the Engineer in the lower end of the sewer section to be tested.
- d. The incoming sewer or sewers in the upper end of the test section shall be securely sealed.

6. Allowable Leakage

- a. The maximum allowable leakage for either infiltration or exfiltration shall be 50 gallons per inch of internal pipe diameter per mile per day.
- b. If actual leakage measured exceeds the limits specified, the Contractor must locate and repair or remove and replace the defective pipe sections to the satisfaction of the Engineer and retest the section accordingly at no additional cost to the Owner.
- c. All sanitary manholes shall be tested separately by using an exfiltration test (or infiltration test where groundwater conditions permit) to two (2) feet above the highest joint with no measurable leakage for a one hour test.

7. Low Pressure Air Testing

- a. PVC sanitary sewers 54-inch diameter and less may be air tested as specified. If the groundwater level is two (2) feet or more above the top of the pipe at the upstream end or if the air pressure required for the test is greater than 5 psig, the air test method should not be used for RCP sanitary sewers.
- b. Each manhole run shall be tested separately, unless otherwise approved by the Engineer, as the construction progresses. Backfill shall be brought to final grade before testing. Testing shall be done

prior to surface restoration, and preferably with not more than four (4) manhole runs constructed ahead of testing.

- c. Test equipment consists of valves and pressure gages to control airflow and to monitor pressure within the test section.
- d. The sewer shall be flushed and cleaned prior to testing to clean out any debris. The pipe surface should be wet for more consistent results.
- e. The section of pipe to be tested shall be plugged at each end and the ends of laterals, stubs and fittings to be included in the test section shall be plugged and securely braced to prevent air leakage, and possible blowouts.
- f. Equipment used shall meet the following minimum requirements and be approved by the Engineer:
 - i. Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be inspected.
 - ii. Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.
 - iii. All air used shall pass through a single control panel.
 - iv. Three (3) individual hoses shall be used for the following connections:
 - a). From control panel to pneumatic plugs for inflation.
 - b). From control panel to sealed line for introducing the low pressure air.
 - c). From sealed line to control panel for continually monitoring the air pressure rise in the sealed line.
- g. All pneumatic plugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be used for the test. The sealed pipe shall be pressurized to 9 psig. The plugs must hold against this pressure without having to be braced. No persons shall be allowed in the alignment of the pipe during plug testing.
- h. After a manhole to manhole run of pipe has been backfilled and cleaned, and the pneumatic plugs are checked by the above procedure, the plugs shall be placed in the line at each manhole.

Low pressure air shall be slowly introduced into this sealed line until the internal air pressure reaches approximately 4 psig greater than the average groundwater back pressure, but not greater than 9 psig for PVC pipe or 5 psig for RCP.

- i. In areas where groundwater is known to exist, the Contractor must determine the average groundwater back pressure. The Contractor shall install a 1/2-inch diameter capped pipe nipple, approximately 10 inches long, through the manhole wall on top of one of the sanitary sewer lines entering the manhole. See Figure No. 1. This shall be done at the time the sanitary sewer line is installed or install an 8-inch diameter stand pipe outside of the manhole backfilled with a column of clean stone of 2-inch minimum diameter to subgrade. Immediately prior to the performance of the low pressure air test, the ground water back pressure shall be determined by removing the pipe cap, blowing air through the pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to the nipple. The plastic tube shall be vertical and a measurement of the height, in feet of water over the invert of the pipe shall be taken after the water has stopped rising in this plastic tube. This height, divided by 2.307, will equal the average groundwater back pressure.
- j. At least two (2) minutes shall be allowed for the air to stabilize when the specified internal air pressure has been obtained. When the pressure has stabilized and is at or above 3.5 psig, the air hose from the control panel to the air supply shall be disconnected. The portion of the line being tested shall be termed "acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average groundwater back pressure calculated) shall not be less than the time in the tables in Reference Table 1.
- k. If a one (1) psi drop in pressure does not occur within the test time, the line has passed. If the pressure drop is more than one (1) psi during the test time, the line is presumed to have failed the test. If the line fails the test, segmented testing may establish the location of any leaks.
- l. The Contractor must repair the leak or remove and replace the defective pipe section and re-test the section to the satisfaction of the Engineer at no additional cost to the Owner.
- m. The pneumatic plugs must be installed in such a way as to prevent blowouts. Inasmuch as a force of 250 pounds is exerted on an 8-inch

plug by an internal pipe pressure of 5 psi, it should be realized that sudden expulsion of a poorly installed plug or a plug, which is partially deflated before the pipe pressure is released, can be dangerous.

- n. The Contractor should internally restrain or externally brace the plugs to the manhole wall as an added safety precaution throughout the test.
- o. Pressurizing equipment shall include a regulator or relief valve set at no higher than 9 psig for PVC pipe or 5 psig for RCP pipe to avoid over-pressurizing and damaging an otherwise acceptable line.
- p. No one shall be allowed in the trench or manholes during testing.
- q. Plugs shall not be removed until all pressure has been released.
- r. All sanitary manholes shall be tested separately by using an exfiltration test (or infiltration test where groundwater conditions permit) to two (2) feet above the highest joint with no measurable leakage for a one hour test.
- s. The air test data sheet marked Exhibit "A" at the end of this section shall be filled out for each section of piping tested in this manner.
- t. Testing concrete pipe sewer lines by the low pressure air test method will be per ASTM C924-02 and C1103.

8. Manhole Vacuum Testing

- a. Temporarily plug all pipe entering the manhole. Each plug must be installed at a location beyond the manhole/pipe gasket (i.e. outside the manhole wall), and shall be braced to prevent the plug or pipe from being drawn into the Manhole.
- b. The test head shall be placed inside the rim of the cast iron frame at the top of the manhole and inflated, in accordance with the manufacturer's recommendations.
- c. A vacuum of at least 10 inches of mercury (10" Hg) shall be drawn on the manhole. Shut the line on the vacuum line to the manhole and shut off the pump or disconnect the vacuum line from the pump.
- d. The pressure gauge shall be liquid filled, having a 3.5" diameter face with a reading from zero to thirty inches of mercury.

- e. The manhole shall be considered to pass the vacuum test if the vacuum reading does not drop more than 1” Hg (i.e from 10” to 9” Hg) during the Table 1 minimum test time.
- f. If a manhole fails the vacuum test, the manhole shall be repaired with non-shrinkable grout or other material or method approved by the engineer. The manhole surfaces shall be properly prepared prior to any repairs. Once the repair material has occurred according to the manufacturer’s recommendations, the vacuum test shall be repeated. This process shall continue until a satisfactory test is obtained.
- g. All temporary plugs and braces shall be removed after each test.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION

3.1 SEQUENCING AND SCHEDULING

- A. The Contractor shall coordinate the sequence of work activities so as to accommodate required testing and shall allow sufficient time for testing of materials by the laboratory so as to cause no delay in the work or the work of any other Contractor. In addition, the Contractor shall coordinate his work so as to avoid the necessity of removing and replacing work to accommodate inspections and tests.

3.2 LABORATORY TEST RESULTS

- A. The testing laboratory shall submit a certified written report of each inspection, test, or similar service concurrently to the Owner, Engineer, and Contractor.
- B. Written reports of each inspection, test, or similar service shall include, but not be limited to, the following:
 - 1. Name of testing laboratory.
 - 2. Project name and construction contract reference number.
 - 3. Dates and locations of samples and tests or inspections.
 - 4. Date of report.
 - 5. Names of individuals making the inspection or test.

6. Designation of the work and test method.
7. Test results.
8. Notation of significant ambient conditions at the time of sample taking and testing.

END OF SECTION 013319

UNI-B-6-98

FIGURE NO. 1

**MANHOLE CROSS-SECTIONAL VIEW
OF THE PROPER METHOD FOR
DETERMINING GROUND WATER HEIGHT**

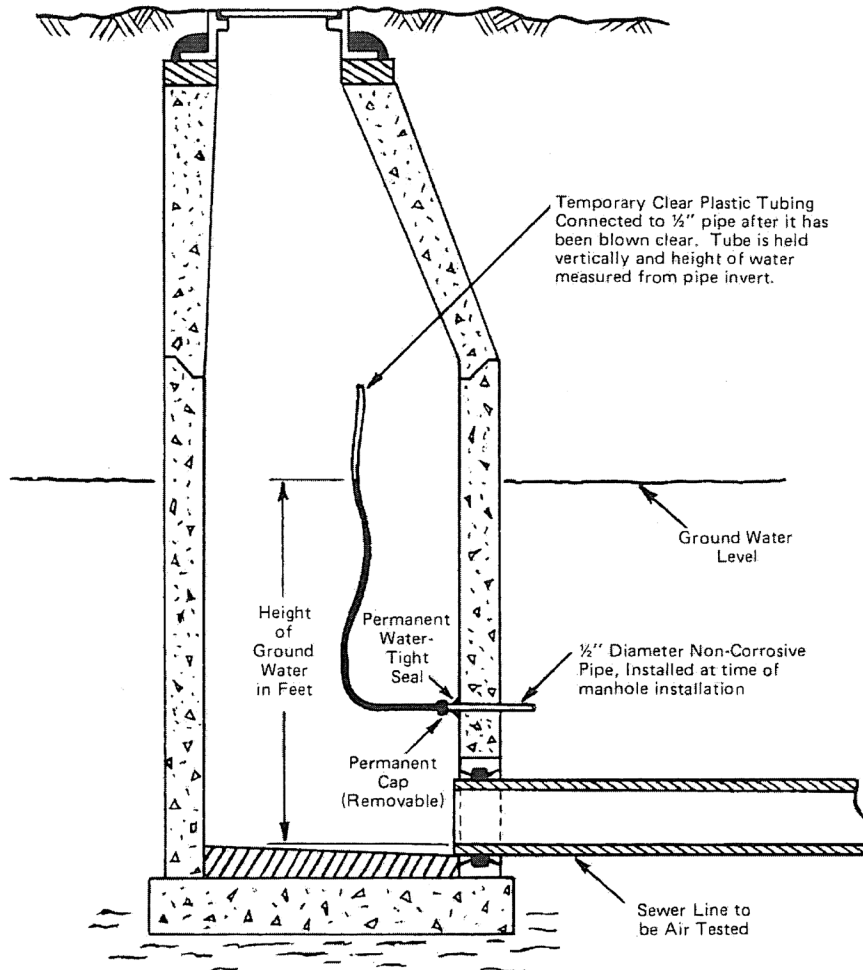


TABLE I

1 Pipe Diameter (Inches)	2 Minimum Time (Min:Sec)	3 Length for Minimum Time (Ft.)	4 Time for Longer Length (Sec)	Specification Time for Length (L) Shown (Min:Sec)							
				100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	350 Ft.	400 Ft.	450 Ft.
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	28.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46
42	39:48	57	41.883 L	69:48	104:42	139:37	174:30	209:24	244:19	279:13	314:07
48	45:34	50	54.705 L	91:10	136:45	182:21	227:55	273:31	319:06	364:42	410:17
54	51:02	44	69.236 L	115:24	173:05	230:47	288:29	346:11	403:53	461:34	519:16
60	56:40	40	85.476 L	142:28	213:41	284:55	356:09	427:23	498:37	569:50	641:04

Minimum specified time required for a 1.0 P.S.I.G. Pressure Drop

for size and length of pipe indicated for Q = 0.0015

NOTE: If there has been no leakage, (zero P.S.I.G. drop), after one hour of testing, the test shall be accepted and the test complete. (See Section 7.5)

TABLE II

Minimum specified time required for a 0.5 P.S.I.G. Pressure Drop

for size and length of pipe indicated for $Q = 0.0015$

1 Pipe Diameter (Inches)	2 Minimum Time (Min:Sec)	3 Length for Minimum Time (Ft.)	4 Time for Longer Length (Sec)	Specification Time for Length (L) Shown (Min:Sec)							
				100 Ft.	100 Ft.	100 Ft.	100 Ft.	100 Ft.	100 Ft.	100 Ft.	100 Ft.
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23
42	19:54	57	20.942 L	34:54	52:21	69:49	87:15	104:42	122:10	139:37	157:04
48	22:47	50	27.352 L	45:35	68:23	91:11	113:58	136:46	159:33	182:21	205:09
54	25:31	44	34.618 L	57:42	86:33	115:24	144:15	173:05	201:56	230:47	259:38
60	28:20	40	42.738 L	71:14	106:51	142:28	178:05	213:41	249:18	284:55	320:32

NOTE: If there has been no leakage, (zero P.S.I.G. drop), after one hour of testing, the test shall be accepted and the test complete. (See Section 7.5)

VERDANTAS, LLC

HYDROSTATIC LEAKAGE TEST

JOB. NO. _____ PROJECT: _____

CONTRACTOR: _____ CLIENT: _____

WATERLINE TESTED AT: _____ (Street Name) _____ (Station of Gauge)

FROM STATION _____ TO STATION _____ ON _____

WATERLINE SIZE _____ TYPE _____

TESTED _____, _____ AT _____ FOR _____
TOTAL L.F. PIPE SIZE PSI DURATION

ALLOWABLE LEAKAGE _____ PER 1,000 L.F. OR _____ PER _____
GALS./HR. TOTAL GALS. TOTAL L.F.

1ST TEST _____, _____ AND _____
PASS / FAIL PRESSURE LOST GALLONS LOST

2nd TEST _____, _____ AND _____
PASS / FAIL PRESSURE LOST GALLONS LOST

APPROVED BY _____
(INSPECTOR)

COMMENTS:

ALLOWABLE LEAKAGE PER 1,000 FEET OF WATERMAIN:

<u>PIPE SIZE</u> <u>INCH DIAMETER</u>	<u>ALLOWABLE LEAKAGE</u> <u>GALS. / 1,000 FEET</u>
6	1
8	1.3
10	1.6
12	1.9
16	2.5
20	3.2
24	3.8
30	4.8
36	5.7

NOTE: IN NO CASE SHALL THE TESTED SECTION EXCEED 2,000 FEET IN LENGTH.



PROJECT: _____ **SHEET NO. 1 OF** _____

JOB NO. _____ **STREET:** _____

CONTRACTOR: _____ **PROJECT REP:** _____

MANHOLE VACUUM TEST

M.H. NO.	M.H. Diameter (in.)	M.H. Depth (ft.) (btm.m.h. cover to shelf)	Vacuum Required (in Hg)	Vacuum Attained (in Hg)	Vacuum Drop (in Hg)	Holding Time Required (sec.)	Pass/Fail	Date Tested	Contractor Attest	Engineer Attest	Remarks

TABLE 1 – Minimum Test Times for Various Manhole Diameter											
Depth		Diameter, in.									
(ft)	30	33	36	42	48	54	60	66	72		
Time(s)											
8	11	12	14	17	20	23	26	29	33		
10	14	15	18	21	25	29	33	36	41		
12	17	18	21	25	30	35	39	43	49		
14	20	21	25	30	35	41	46	51	57		
16	22	24	29	34	40	46	52	58	67		
18	25	27	32	38	45	52	59	65	73		
20	28	30	35	42	50	53	65	72	81		
22	31	33	39	46	55	64	72	79	89		
24	33	36	42	51	59	64	78	87	97		
26	36	39	46	55	64	75	85	94	105		
	39	42	49	59	69	81	91	101	113		
	42	45	53	63	74	87	98	108	121		

Note: Allowable drop equals 1 in. Hg for time shown

PROJECT REP: _____

DATE: _____

SECTION 013323 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.1 GENERAL

- A. The Contractor shall submit detailed drawings, acceptable catalog data, specifications and material certifications for all equipment and materials specified or required for the proper completion of the work.
- B. The intent of these items is to demonstrate compliance with the design concept of the work and to provide the detailed information necessary for the fabrication, assembly and installation of the work specified. It is not intended that every detail of all parts of manufactured equipment be submitted, however sufficient detail will be required to ascertain compliance with the specifications and establish the quality of the equipment proposed.

Shop Drawings shall be sufficiently clear and complete to enable the Engineer/Architect and Owner to determine that items proposed to be furnished conform to the specifications and that items delivered to the site are actually those that have been reviewed.

- C. It is emphasized that the Engineer/Architect's review of Contractor's submitted data is for general conformance to the contract drawings and specifications but subject to the detailed requirements of drawings and specifications. Although the Engineer/Architect may review submitted data in detail, such review is an effort to discover errors and omissions in Contractor's drawings. The Engineer/Architect's review shall in no way relieve the Contractor of his obligation to properly coordinate the work and to Engineer/Architect the details of the work in such manner that the purposes and intent of the contract will be achieved. Such review by the Engineer/Architect shall not be construed as placing on him or on the Owner any responsibility for the accuracy and for proper fit, functioning or performance of any phase of the work included in the contract.
- D. Shop Drawings shall be submitted in proper sequence and with due regard to the time required for checking, transmittal and review so as to cause no delay in the work. The Contractor's failure to transmit appropriate submittals to the Engineer/Architect sufficiently in advance of the work shall not be grounds for time extension.
- E. The Contractor shall submit Shop Drawings for all fabricated work and for all manufactured items required to be furnished in the Contract in accordance with the General Provisions and as specified herein. Shop Drawings shall be submitted in sufficient time to allow at least twenty-one (21) calendar days after receipt of the Shop Drawings from the Contractor for checking and processing by the Engineer/Architect.
- F. It is the responsibility of each Prime Contractor to furnish to all other Prime Contractors and especially the General Construction Contractor reviewed Shop Drawings for guidance in interfacing the various trades; i.e., sleeves, inserts, anchor bolts, terminations, and space requirements.

- G. No work shall be performed requiring Shop Drawings until same have been reviewed by Engineer/Architect.
- H. Accepted and reviewed Shop Drawings shall not be construed as approval of changes from Contract plan and specification requirements.
- I. The Engineer/Architect will review the first and second Shop Drawing item submittals at no cost to the Contractor. Review of the third submittal and any subsequent submittal will be at the Contractor's expense. Payment will be deducted from the Contract amount at a rate of 2.8 times direct labor cost plus expenses.

1.2 SUBMITTAL PROCEDURE

- A. All required submissions shall be made to the Engineer/Architect by the Prime Contractor(s) only. Any data prepared by subcontractors and suppliers and all correspondence originating with subcontractors, suppliers, etc., shall be submitted through the Contractor.
- B. Contractor shall review and approve all Shop Drawings prior to submission. Contractor's approval shall constitute a representation to Owner and Engineer/Architect that Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data or assumes full responsibility for doing so, and that Contractor has reviewed or coordinated each Shop Drawing or sample with the requirements of the work and the Contract Documents.
- C. Submittal Preparation: Mark each submittal with a permanent label or page for identification. Provide the following information on the label for proper processing and recording of action taken:
 - 1. Location
 - 2. Project Name
 - 3. Contract
 - 4. Name and Address of Engineer/Architect
 - 5. Name and Address of Contractor
 - 6. Name and Address of Subcontractor
 - 7. Name and Address of Supplier
 - 8. Name of Manufacturer
 - 9. Number and Title of appropriate Specification Section
 - 10. Drawing Number and Detail References, as appropriate.
 - 11. Submittal Sequence or Log Reference Number.
 - a. Provide a space on the label for the Contractor's review and approval markings and a space for the Engineer/Architect's "Action Stamp".
- D. Each Shop Drawing, sample and product data submitted by the Contractor shall have affixed to it the following Certification Statement including the Contractor's Company name and signed by the Contractor:

Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog

numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.

Signature

Date

Company

- E. Shop Drawings shall be submitted in not less than six (6) copies to the Engineer/Architect at the address specified at the Preconstruction Conference. Single mylar or sepia reproducible copies of simple Shop Drawings may be submitted with prior approval of the Engineer/Architect.
- F. At the time of each submission, Contractor shall in writing identify any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.
- G. Drawings shall be clean, legible and shall show necessary working dimensions, arrangement, material finish, erection data, and like information needed to define what is to be furnished and to establish its suitability for the intended use. Specifications may be required for equipment or materials to establish any characteristics of performance where such are pertinent. Suitable catalog data sheets showing all options and marked with complete model numbers may, in certain instances, be sufficient to define the articles which it is proposed to furnish.
- H. SAMPLES: For product which require submittal of samples, furnish samples so as not to delay fabrication, allowing the Engineer reasonable time for the consideration of the samples submitted. Properly label samples, indicating the material or product represented, its place of origin, the names of the vendor and Contractor and the name of the project for which it is intended. Ship samples prepaid. Accompany samples with pertinent data required to judge the quality and acceptability of the sample, such as certified test records and, where required for proper evaluation, certified chemical analyses.

1.3 REVIEW PROCEDURE

- A. Engineer/Architect will review with reasonable promptness all properly submitted Shop Drawings. Such review shall be only for conformance with the design concept of the Project and for compliance with the information given in the plans and specifications and shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs incident thereto.
- B. The review of a separate item as such will not constitute the review of the assembly in which the item functions. The Contractor shall submit entire systems as a package.
- C. All Shop Drawings submitted for review shall be stamped with the Engineer/Architect's action and associated comments.
- D. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Engineer/Architect will review each submittal, mark to

indicate action taken, and return accordingly. Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Engineer/Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

1. If Shop Drawings are found to be in general compliance, such review will be indicated by marking the first statement.
 2. If only minor notes in reasonable number are needed, the Engineer/Architect will make same on all copies and mark the second statement. Shop Drawings so marked need not be resubmitted.
 3. If the submitted Shop Drawings are incomplete or inadequate, the Engineer/Architect will mark the third statement, request such additional information as required, and explain the reasons for revision. The Contractor shall be responsible for revisions, and/or providing needed information, without undue delay, until such Shop Drawings are acceptable. Shop Drawings marked with No. 3 shall be completed resubmitted.
 4. If the submitted Shop Drawings are not in compliance with the Contract Documents, the Engineer/Architect will mark the fourth statement. The Contractor will be responsible to submit a new offering conforming to specific products specified herein and/or as directed per review citations.
- E. No submittal requiring a Change Order for either value or substitution or both, will be returned until the Change Order is approved or otherwise directed by the Owner.

APPLICATION FOR USE OF SUBSTITUTE ITEM

TO: _____

PROJECT: _____

SPECIFIED ITEM:

Page	Paragraph	Description
A.		The undersigned requests consideration of the following as a substitute item in accordance with Article 6.05 of the General Conditions.
B.		Change in Contract Price (indicate + or -) \$ _____
C.		Attached data includes product description, specifications, drawings, photographs, references, past problems and remedies, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified. For consideration of the attached data as SHOP DRAWINGS, submittal shall be in accordance with requirements of Section 013323.
D.		Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments are correct:

1. The proposed substitute does not affect dimensions shown on Drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing, and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse affect on other contractors, the construction schedule, or specified warranty requirements. (If proposed substitution affects construction schedule, indicate below using + or -)

_____ CONSECUTIVE CALENDAR DAYS

4. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item, and agrees to reimburse the OWNER for the charges of the ENGINEER for evaluating this proposed substitute item.

E. Signature:

Firm:

Address:

Telephone:

Date:

Attachments:

For use by ENGINEER:

_____ Accepted as evidenced by affixed SHOP DRAWING REVIEW stamp.

_____ Accepted as evidenced by included CHANGE ORDER.

_____ Not accepted as submitted. See Remarks.

_____ Acceptance requires completion of submittal as required for SHOP DRAWINGS.

_____ Not accepted. Do not resubmit.

By:

Date:

Remarks:

APPLICATION FOR USE OF "OR-EQUAL" ITEM

TO: _____

PROJECT: _____

SPECIFIED ITEM:

Page	Paragraph	Description
------	-----------	-------------

A. The undersigned requests consideration of the following as an "or-equal" item in accordance with Article 6.05 of the General Conditions.

B. Change in Contract Price (indicate + or -) \$ _____

C. Attached data includes product description, specifications, drawings, photographs, references, past problems and remedies, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified. For consideration of the attached data as SHOP DRAWINGS, submittal shall be in accordance with requirements of Section 013323.

D. Signature:

Firm: _____

Address: _____

Telephone: _____ Date: _____

Attachments: _____

For use by ENGINEER:

_____ Accepted as evidenced by affixed SHOP DRAWING REVIEW stamp.

_____ Accepted as evidenced by included CHANGE ORDER.

_____ Not accepted as submitted. See Remarks.

_____ Acceptance requires completion of submittal as required for SHOP DRAWINGS.

_____ Not accepted. Do not resubmit.

By: _____ Date: _____

Remarks: _____

END OF SECTION 013323

SECTION 013326 – PRODUCT TESTING AND CERTIFYING

PART 1 - GENERAL

1.1 QUALITY OF MATERIALS

- A. Where the specifications call for mill or shop tests, the Contractor shall furnish duplicate copies of attested manufacturer's certificates showing details of quality or performance sufficient to demonstrate conformity to contract requirements. Mill, shop or witness tests shall be subject to view by the Engineer's representative, but the Engineer's representation shall not relieve the Contractor from the necessity of furnishing certificates specified. The Engineer shall be notified by the Contractor in writing, sufficiently in advance of the time of making tests, so that proper arrangements may be made. Waiving of witness of tests by the Engineer may be in writing only by the Engineer. All costs for travel, lodging, food and transportation that are necessary for the Engineer's representative and the Owner's representative to attend witness tests shall be included in the Contractor's bid for those item(s) specifically designated as being subject to witness testing.
- B. Unless otherwise specified, all materials, equipment and articles shall be erected, installed, applied, or connected, used, cleaned and conditioned in accordance with the printed instructions and directions of the manufacturer.
- C. The installation shall be so made that its several component parts will function together as a workable system. It shall be complete with all accessories necessary for its operation and shall be left with all equipment properly adjusted and in working order.
- D. The work shall be executed in conformity with the best practice and so as to contribute to efficiency of operation, minimum maintenance, accessibility and sightliness. It shall also be executed so that the installation will conform and accommodate itself to the building structure, its equipment and usage.
- E. Whenever in the contract documents a particular brand, make of material, device or equipment is shown or specified, such brand, make of material, device or equipment is to be regarded merely as a standard and such trade name shall be followed by "or equal".

1.2 QUALITY ASSURANCE

- A. The equipment and materials to be furnished under this Contract shall be the products of well established and reliable firms which have had ample experience for at least five (5) years in the manufacture of equipment or materials similar in design and of equal quality to that specified. If required, the manufacturer shall submit a list of installations of similar equipment which have been in successful operation for at least five (5) years.

1.3 EXPERIENCE CLAUSE REQUIREMENT AND PERFORMANCE BONDS FOR MANUFACTURER

- A. For every piece of equipment furnished under this Contract, the manufacturer will be required to have a minimum of five (5) years of experience in providing this specific type

of equipment. In lieu of this experience requirement, the manufacturer will be required to provide performance bond(s) for the faithful performance of the equipment and guarantee payment in a sum of not less than one hundred and fifty percent (150%) of the total equipment price for the completed work for that item. In the absence of verifiable experience, the manufacturer will be required to provide the performance bond(s) for the same number of years that the manufacturer was found lacking in experience from the specified five (5) year period. The performance bond(s) shall be from an approved surety company, to the satisfaction of the Owner's Law Director.

- B. Agents of bonding companies which write bonds for the performance and payment of the contract shall furnish power of attorney bearing the seal of the company, evidencing such agent's authority to execute the particular type of bond to be furnished, and evidencing also the right of the surety company to do business in the State of Ohio. Copy of this proof shall be attached to each copy of the contract.
- C. The bond shall be purchased through a surety company with a local agent upon whom service of process can be made.
- D. In event of failure of surety or co-surety, the manufacturer shall immediately furnish a new bond, as required herein. The manufacturer's bond will not be released until all provisions of the contract have been fulfilled.
- E. The surety used for the bid bond and performance bond shall be listed in the latest U.S. Treasury Circular 570 and the Penal Sums shall be within the maximum specified for such company in said Circular 570.

END OF SECTION 013326

SECTION 013326.01 - QUALITY CONTROL PLAN

PART 1 - GENERAL

1.1 QUALITY CONTROL

- A. The Contractor shall be responsible for the quality of all materials incorporated into the project work and shall be responsible for all costs of testing and certification of same. The Contractor shall provide the City Engineer a list of three (3) local qualified firms for the City to select from to be the Contractor's testing firm.
- B. The Contractor shall provide the Engineer with a Quality Control Plan in which his testing methods/procedures are defined. Said Plan shall meet with the approval of the Engineer and include identification of laboratories, types of testing, and the tentative amount and scheduling of each.

All certifications of tests and/or gradations for materials to be utilized in the work and all quality control testing shall be performed by an independent laboratory (not affiliated with, owned by, or managed by the Contractor). The laboratory shall be accredited by the AASHTO Materials Reference Laboratory for the type of testing performed.

- C. The Owner may perform field Quality Assurance testing; however, such testing shall not relieve the Contractor from the responsibility of Quality Control testing or from supplying certificates from manufacturers or suppliers to demonstrate compliance with the specifications. It is intended that the testing by the Contractor and the Owner be complimentary toward a quality project; however, the Contractor may not assume the Owner will test or that any tests will be done in lieu of the Contractor's own Quality Control testing. In the same sense, the Contractor may not rely on Owner Quality Assurance testing as a basis of acceptance or approval of his work nor may any Owner performed testing be reflected in his submitted plan.

1.2 TEST CRITERIA

- A. The following tests at a minimum shall be included with the Contractor's Quality Control Plan in accordance with the specifications:
 - 1. Aggregates
 - a. For each material and/or different source, the laboratory shall perform soundness, gradation, and other tests for all parameters specified. Aggregates incorporated into concrete or asphalt mixes shall also be tested for moisture content daily.
 - 2. Compaction Tests
 - a. Compaction tests or field density tests shall be taken on all embankment, trench backfill, subgrade, and subbase materials.
 - b. Minimum testing shall be as follows:

Embankment testing shall be at least one (1) test/5000 S.F. of each lift;
Trench backfill testing shall be at least one (1) test/50 L.F. of each lift;
Subgrade and/or subbase testing shall be at least one (1) test/200 L.F. of
pavement or /5000 S.F. of slabs; subject to greater frequency due to soil
conditions or Engineer's direction.

- c. Proctors or relative density tests shall be performed as often as necessary for the differing soils or granular materials utilized. Proctors shall be run with a minimum of 5 points. Test reports shall show the wet (bulk) weight, dry weight, wet (bulk) density, dry density, moisture content weight and moisture content percentage. Both the dry curve and the wet curve shall be plotted. The source materials shall be tested for gradation, Atterberg limits, shore-hydrometer and moisture content.

3. Concrete Mix Design

- a. For each type of concrete, the laboratory shall perform the necessary mix design providing all test data as required by the specifications.

4. Concrete Field and Laboratory Tests

- a. The laboratory shall cast concrete cylinders and test beams:
 - 1) One set of four cylinders per 50 C.Y. with a minimum of two sets per day. The cylinders shall be broken: one at 7 days, two at 28 days, one at 56 days, unless otherwise directed by the Engineer.
 - 2) One beam per 50 C.Y. with a minimum of two beams per day.
- b. Temperature and unit weight shall be run on fresh concrete at intervals sufficient for the type of structure being placed and a minimum of once per day. Bulk weight, bucket weight, (tare), net weight, bucket factor (bucket volume) and unit weight shall be recorded on the fresh concrete report. Show all batch weights for yield calculations. Slump and air content tests shall be taken a minimum of one test per 20 C.Y. and at least once per day.
- c. All field and laboratory testing shall be performed by technicians certified by the American Concrete Institute (ACI) for the type of testing performed.
- d. Initial cure of all cylinders shall be in a temperature controlled cure box or temperature controlled water tank with a hi-low thermometer. Hi-low temperature readings shall be recorded on the fresh concrete report.

5. Asphalt Mix Design

- a. For each type of asphalt mix, submit job mix formula (JMF) prepared by an ODOT pre-qualified laboratory from tests performed on the aggregates proposed for use.
- b. Sample and test for gradation and bitumen content as per ODOT 441.
- c. Asphalt compaction, thickness, and temperature tests shall be performed during asphalt placement per ODOT Item 448.

1.3 LABORATORY REPORTS

- A. Reports of laboratory and field tests will be distributed to the Engineer, Owner, and Suppliers within 24 hours of completion.

END OF SECTION 013326.01

SECTION 013543 - ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.1 UNNECESSARY NOISE, DUST AND ODORS

- A. The Contractor's performance of this contract shall be conducted so as to eliminate all unnecessary noise, dust and odors.

1.2 SEWAGE, SURFACE AND FLOOD FLOWS

- A. The Contractor shall take whatever action is necessary to provide all necessary tools, equipment and machinery to adequately handle all sewage, surface flows and flood flows which may be encountered during the performance of the work. The entire cost of and liability for handling such flows is the responsibility of the Contractor and shall be included in the price for the appropriate item.

1.3 WORK IN FREEZING WEATHER

- A. Written permission from the Engineer shall be obtained before any work is performed which, in the judgment of the Engineer, may be affected by frost, cold, or snow. When work is performed under such conditions, the Contractor shall provide facilities for heating the materials and for protecting the finished work.

1.4 POLLUTION CONTROL

- A. It shall be the responsibility of the Contractor to prevent or limit pollution of air and water resulting from his operations.
- B. The Contractor shall perform work required to prevent soil from eroding or otherwise entering onto all paved areas and into natural watercourses, ditches, and public sewer systems. This work shall conform to all local ordinances and/or regulations, if any, and if not otherwise regulated by local ordinances or regulations shall at a minimum conform to the Ohio EPA General Storm Water NPDES Permit for Construction Activities and the Ohio Department of Natural Resources Rainwater and Land Development manual. This work may consist of but not be limited to construction and continual maintenance of silt fence, bio bag filters, sedimentation traps, stilling basins, check dams, temporary seeding, temporary mulching, erosion mats and other means to clarify waters containing suspended materials from excavations, embankments, cleared and grubbed or stripped areas, stockpiles, well points, and disposal sites and shall be commensurate with the contractor's schedule, sequence of work, means and methods. If a SWPPP plan is not required for the project, the contractor shall at a minimum submit a plan of his proposed erosion control prevention methods for approval by the Owner and/or other regulatory authorities having jurisdiction prior to starting any construction activities which may cause erosion.

- C. The Contractor shall perform work required to prevent dust attributable to his operations from entering the atmosphere. Dust on unsurfaced streets or parking areas and any remaining dust on surfaced streets shall be controlled with water and/or calcium chloride dust palliative as needed.
- D. Any material removed from sanitary or storm sewers shall be disposed in accordance with all applicable regulations.

END OF SECTION 013543

SECTION 014126 - GENERAL REGULATIONS AND PERMITS

PART 1 - GENERAL

1.1 REGISTRATION

All Contractors and subcontractors shall be registered with the Building Department having jurisdiction. Contact the Building Department for additional registration information.

1.2 PERMITS

The Contractor shall apply for and pay for all permits from the Owner and/or other authorities having jurisdiction.

1.3 ARCHAEOLOGICAL DISCOVERIES

Contractors and subcontractors are required under Ohio Revised Code (O.R.C.) Section 149.53, to notify Ohio's State Historic Preservation Office (SHPO), and to cooperate with that office in archaeological and historic surveys and mitigation efforts if such discoveries are uncovered within the project area.

Contact: Ohio's State Historic Preservation Office
Kristen Koehlinger, Resource Protection & Review Department Manager
Phone: 1-614-298-2000
Email: kkoehlinger@ohiohistory.org

Should archaeological discoveries or other activities delay progress of the work, an adjustment in contract time will be made.

END OF SECTION 014126

SECTION 014223 - INDUSTRY STANDARDS

PART 1 - GENERAL

1.1 ABBREVIATIONS

- A. Abbreviations, as used, designate the following:

AASHTO	-	American Association of State Highway and Transportation Officials
ACI	-	American Concrete Institute
AIEE	-	American Institute of Electrical Engineers
AISC	-	American Institute of Steel Construction
ANSI	-	American National Standards Institute
ASTM	-	American Society of Testing and Materials
AWWA	-	American Water Works Association
CMS	-	Construction and Material Specifications
NEMA	-	National Electrical Manufacturers Association
ODOT	-	Ohio Department of Transportation
ORC	-	Ohio Revised Code
UL	-	Underwriters Laboratories, Inc.

1.2 REFERENCE TO OTHER SPECIFICATIONS

- A. Where reference is made to specifications such as ASTM, AWWA or AASHTO, the latest edition shall be used, unless otherwise noted on the plans or in the specifications.

1.3 CODES AND STANDARDS

- A. All work provided for by these specifications must be installed according to the provisions of the State and local building codes, subject to inspection and acceptance by the State and local inspectors.

END OF SECTION 014223

SECTION 014323 – QUALIFICATIONS OF TRADESMEN

PART 1 - GENERAL

1.1 CHARACTER OF WORKMEN AND EQUIPMENT

- A. The Contractor shall employ competent and efficient workmen for every kind of work. Any person employed on the work who shall refuse or neglect to obey directions of the Owner or his representative, or who shall be deemed incompetent or disorderly, or who shall commit trespass upon public or private property in the vicinity of the work, shall be dismissed when the Owner so orders, and shall not be re-employed unless express permission be given by the Owner. The methods, equipment and appliances used on the work and the labor employed shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the specified time limit.

- B. In hiring of employees for the performance of work under this Contract, or any Subcontract hereunder, no Contractor or Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall, by reason of race, sex, creed or color, discriminate against any citizen of the State of Ohio in the work to which the employment relates. No Contractor, Subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, creed, sex or color.

END OF SECTION 014323

SECTION 015713 - TEMPORARY EROSION CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Furnishing all labor, materials, tools, equipment and services for the temporary soil erosion and sediment control work as indicated.
- B. Coordinating the temporary pollution and erosion control with work of all other trades.
- C. Reducing to the greatest extent practicable the area and duration of exposure of readily erodible soils.
- D. Protecting the soils by use of temporary vegetation or mulch or by accelerating the establishment of permanent vegetation.
- E. Mechanically retarding the rate of runoff from the construction site and control disposal of runoff.
- F. Trapping all sediment resulting from construction in temporary or permanent debris basins.
- G. Using temporary measures to keep erosion under control if construction is suspended for any appreciable length of time.
- H. Providing protection against chemical, fuel, or lubricant spills, and sewage pollutants.
- I. Protecting project and existing structures from surface water damage due to utility line excavations.
- J. Controlling soil erosion and sedimentation by use of silt fences, dikes, ditches, slope protection, sediment pits, basins, dams, slope drains, coarse aggregate, mulches, sod, grasses, filter fabrics, and other erosion control devices or methods.

1.2 RELATED SECTIONS

- A. Section 013319 – Field Testing Requirements
- B. Section 310000 – Earthwork

1.3 SUBMITTALS

- A. Product Data
 - 1. Filter fabric
- B. Shop Drawings
- C. Samples
- D. Quality Control Submittals
 - 1. Design Data
 - 2. Test Reports
 - 3. Certificates
 - a. Seed
 - b. Fertilizer
 - c. Limestone
 - 4. Manufacturers Instructions
- E. Contract Closeout Submittals
 - 1. Project Record Documents

1.4 QUALITY ASSURANCE

- A. Qualifications
- B. Regulatory Requirements
- C. Certifications
- D. Field Samples
- E. Mock-ups
- F. Pre-Installation Conference

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping
 - a. Deliver grass seed, fertilizer and limestone in original containers labeled with content analysis.
- C. Acceptance at Site
 - a. All material and all equipment shall be subject to visual inspection and acceptance or rejection after delivery to the site of the work. All rejected material shall immediately be removed from the site.

1.6 PROJECT CONDITIONS

- A. Environmental Requirements – temporary and permanent erosion control measures shall be installed such that meet all weather, temperature, and humidity requirements set forth by the manufacturer.
- B. Existing Conditions – The Contractor is responsible to review and verify existing conditions of the project site(s) for the necessary erosion control and seeding requirements anticipated for their work.

1.7 SEQUENCING AND SCHEDULING

- A. All temporary control measures as shown on the Drawings, called for in these Specifications or ordered by the Engineer shall remain in effect during the life of the contract to control soil erosion, sedimentation and water pollution.

1.8 MAINTENANCE

- A. The contractor is responsible to ensure that all measures remain in place for the entire duration of construction. Any item unitentially damaged, removed, or dislodged is the responsibility of the Contractor to immediately reinstall as intended. This shall be done at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 SEED

- A. Provide fresh, clean, new crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America.
- B. All areas of temporary seeding shall be seeded with grass as shown in the following table:

March 1 - August 15	Per 1000	
	Square Feet	Per Acre
Oats	3 lbs.	4 bu.
Perennial Ryegrass	1 lb.	40 lbs.
Tall Fescue	1 lb.	40 lbs.

August 16 - November 1*	Per 1000	
	Square Feet	Per Acre
Rye	3 lbs.	2 bu.
Wheat	3 lbs.	2 bu.
Perennial Ryegrass	1 lb.	40 lbs.
Tall Fescue	1 lb.	40 lbs.

* After November 1, use mulch only

2.2 ORGANIC MULCH

- A. Select mulch material based on site requirements, availability of materials and availability of labor and equipment. The following are the minimum rates:

Mulch	Rates		Notes
	Per Acre	Per 1000 ft ²	
Straw (temporary only)	2 tons	90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Wood Chips (permanent or temporary)	400 yds. ³	9 - 10 yds. ³	Apply approx. 3" deep. Treat with 12 lbs. of nitrogen per ton. Do not use on firm turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark (temporary mulch only)	70 yds. ³	1½ - 2 yds. ³	Do not use in fine turf areas. Apply about ½" thick. Apply with a mulch blower or by hand.

2.3 FERTILIZER

- A. All fertilizer shall be manufactured from cured stock and organic sources. Chemical elements shall be accurately proportioned, uniformly mixed, and delivered to the site in factory-sealed containers fully labeled, bearing the name or trademark and warranty of the manufacturer. Commercial fertilizer for lawn sodding shall be dry or liquid compounds of 12-12- 12 analysis, meeting applicable requirements of State and Federal laws.

2.4 LIMESTONE

- A. All limestone shall be ground agricultural grade dolomitic limestone containing at least 10 percent magnesium oxide with a minimum total neutralizing power of 90, with at least 40 percent passing a No. 100 sieve and at least 95 percent passing a No. 8 sieve.

2.5 WATER

- A. All irrigation water shall be clean and free from injurious amounts of oil, acid, alkali, or other deleterious substances.

2.6 DITCH CHECKS

- A. Temporary ditch checks shall consist of coarse aggregate dikes.

2.7 INLET FILTERS

- A. Temporary inlet filters and silt fences shall be adequately supported as detailed on the drawings.

2.8 SLOPE DRAINS

- A. Temporary slope drains shall consist of pipe, coarse aggregate, riprap, rock channel protection, mats, plastic sheets or other materials approved by the Engineer. Sediment pits may be included as part of slope drain protection.

2.9 FILTER FABRIC

- A. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	Requirements
Filtering Efficiency	75% (min.)

Tensile Strength at Extra Strength -
20% (max.) Elongation 50 lbs./lin. in. (min.)
*

Standard Strength - 30 lbs./lin.
in. (min.)

Flow Rate 0.3 gal./sq.ft./min. (min.)

*Requirements reduced by 50 percent after 6 months of installation.

- B. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0° F to 120° F.

2.10 BURLAP

- A. Burlap shall be 10 ounce per square yard fabric.

2.11 FILTER SUPPORTS AND REINFORCING

- A. Posts for silt fences shall be either 4" diameter wood or 1.33 pounds per linear foot steel with a minimum length of 5 feet. Steel posts shall have projections for fastening wire to them.
- B. Stakes for filter barriers shall be 1" x 2" wood (preferred) or equivalent metal with a minimum length of 3 feet.
- C. Wire fence reinforcement for silt fences using standard strength filter cloth shall be a minimum of 42 inches in height, a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall limit the surface area of erodible earth material exposed by clearing and grubbing; the surface area of erodible earth material exposed by excavation; borrow; and fill operations; and provide immediate permanent or temporary control measures to prevent contamination of adjacent streams or other areas of water impoundment. Such work will involve the construction of temporary ditch checks, filters, benches, dikes, slope drains, and use of temporary mulches, mats, seeding or other control devices or methods necessary to control erosion and sedimentation.
- B. The Contractor shall incorporate all permanent erosion control features into the Work at the earliest practicable time. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. This will require the establishing of final grades as shown on the Drawings and application of agricultural limestone, commercial fertilizer, seeding and mulching or sodding . When directed by the Engineer, temporary fertilizer, seeding and mulching materials shall be used. In general, the Contractor shall temporarily seed all disturbed areas within seven (7) days if they are to remain dormant for more than forty- five (45) days. Permanent soil stabilization shall be applied to disturbed areas within seven (7) days after final grade is reached on any portion of the site.. Temporary control measures will be used when and as directed by the Engineer to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.
- C. Where erosion is likely to be a problem, clearing and grubbing operations should be so scheduled and performed that grading operations and permanent erosion control features can follow immediately thereafter if the project conditions permit; otherwise temporary erosion control measures will be required between successive construction stages.
- D. The Engineer will limit the area of excavation, borrow and embankment operations in progress commensurate with the Contractor's capability and progress in keeping the finished grading, mulching, seeding, and other such permanent control measures current in accordance with the accepted schedule. Mulching, seeding, and other such permanent control measures shall be applied after completion of a vertical eight (8) feet of embankment or cut, unless otherwise directed by the Engineer. Should seasonal limitations or embankment make such coordination unrealistic, temporary erosion control measures shall be taken immediately.
- E. The Engineer may increase or decrease the allowable amount of surface area or erodible earth material to be exposed at one time by clearing and grubbing, excavation, borrow and fill operations as determined by his analysis of project

conditions. Factors such as soil erodibility, slope, cut or fill height, exposed area contributing to a watercourse and weather will be considered in this determination.

- F. In the event of conflict between these requirements and pollution control laws, rules, or regulations or other Federal, State or local agencies, the more restrictive laws, rules or regulations shall apply.
- G. Temporary seeding areas shall be fertilized at a rate of 12-15 pounds per 1000 square feet of 10-10-10 or 12-12-12 analysis or equal.
- H. When directed by the Engineer, the seed bed shall be thoroughly watered to maintain adequate moisture in the upper four (4) inches of soil, necessary to promote proper root growth.
- I. When directed by the Engineer, temporary seeded areas shall be mowed when grass exceeds four (4) inches in height.
- J. Temporary erosion control features shall be acceptably maintained and shall subsequently be removed or replaced when directed by the Engineer.
- K. Removed materials shall become the property of the Contractor and shall be disposed of off the site at the Contractor's expense.

3.2 PERFORMANCE

- A. If, in the opinion of the Engineer and Owner, proper control of soil erosion and sedimentation is not being provided by the Contractor, the Owner may take all necessary steps to provide corrective measures and the cost of such services will be deducted from any money which may be due or become due the Contractor.
- B. Control work performed for protection of construction areas outside the construction site, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites shall be considered as a subsidiary obligation of the Contractor, with all necessary control costs included in the contract price.
- C. In the event that temporary erosion and sediment control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled, and are ordered by the Engineer, such temporary work shall be performed by the Contractor at his expense.

3.3 SILT FENCE

- A. The height of a silt fence shall not exceed 36 inches (higher fences may impound volumes of water sufficient to cause failure of the structure).
- B. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be

spliced together only at a support post, with a minimum six (6) inches overlap and securely sealed.

- C. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location and driven securely into the ground (minimum of 12 inches). When extra strength fabric is used without the wire support fence, post spacing shall not exceed six (6) feet.
- D. A trench shall be excavated approximately four (4) inches wide and four (4) inches deep along the line of posts and upslope from the barrier.
- E. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend into the trench a minimum of two (2) inches and shall not extend more than 36 inches above the original ground surface.
- F. The standard strength filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.
- G. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of Subparagraph F above applying.
- H. The trench shall be backfilled and soil compacted over the filter fabric.
- I. Silt fences shall be removed when they have served their purpose, but not before the upslope area has been permanently stabilized.
- J. Silt fences and filter barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
- K. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly.
- L. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.
- M. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

3.4 TEMPORARY MULCHING

- A. Application
 - 1. Mulch materials shall be spread uniformly, by hand or machine.

- a. When spreading straw mulch by hand, divide the areas to be mulched into approx. 1000 sq. ft. sections and place approx. 90 lbs. of straw in each section to facilitate uniform distribution.
- B. Mulch Anchoring
1. Straw mulch shall be anchored immediately after spreading to prevent windblow. One of the following methods of anchoring straw shall be used:
 - a. Mulch anchoring tool
 1. This is a tractor-drawn implement (mulch crimper, serrated straight disk or dull farm disk) designed to punch mulch approximately two(2) inches into the soil surface. This method provides maximum erosion control with straw. It is limited to use on slopes no steeper than 3:1, where equipment can operate safely. Machinery shall be operated on the contour.
 - b. Liquid mulch binders
 1. Application of liquid mulch binders and tackifiers should be heaviest at edges of areas and at crests of ridges and banks, to prevent windblow. The remainder of the area should have binder applied uniformly. Binders may be applied after mulch is spread; however, it is recommended to be sprayed into the mulch as it is being blown onto the soil. Applying straw and binder together is the most effective method.
 2. The following type of binder may be used:
 - a.) Asphalt - any type of asphalt thin enough to be blown from spray equipment is satisfactory. Recommended for use are rapid curing (RC-80, RC-250, RC-800), medium curing (MC-250, MC-800) and emulsified asphalt (SS-1, MS-2, RS-1 and RS-2). Apply asphalt at 4 gal./1000 ft.², 600 gal./acre. Do not use heavier applications as it may cause the straw to "perch" over rills.
 - b.) Wood Fiber - wood fiber hydroseeder slurries may be used to tack straw mulch.
 - c. Mulch nettings
 1. Lightweight plastic, cotton or paper nets may be stapled over the mulch according to manufacturer's recommendations.
- C. Chemical Mulches
1. Chemical mulches may be used alone only in the following situations:
 - a. Where no other mulching material is available.
 - b. In conjunction with temporary seeding during the times when mulch is not required for that practice.
 2. Chemical mulches may be used to bind other mulches or with wood fiber in a hydroseeded slurry at any time. Manufacturer's recommendations for application of chemical mulches shall be followed.

D. Nets and Mats

1. Nets may be used alone on level areas, on slopes no steeper than 3:1, and in waterways.
2. When mulching is done in late fall or during June, July and August, or where soil is highly erodible, net should only be used in conjunction with an organic mulch such as straw.
3. When net and organic mulch are used together, the net should be installed over the mulch except when the mulch is wood fiber. Wood fiber may be sprayed on top of the installed net.
4. Excelsior blankets are considered protective mulches and may be used alone on erodible soils and during all times of the year.
5. Other products designed to control erosion shall conform to manufacturer's specification and should be applied in accordance with manufacturer's instructions provided those instructions are at least as stringent as this specification.
6. Staples will be made of plain iron wire, No. 8 gauge or heavier, and will be six (6) inches or more in length.
7. Prior to installation:
 - a. Shape and grade as required the waterway, channel, slope or other area to be protected.
 - b. Remove all rocks, clods or debris larger than two (2) inches in diameter that will prevent contact between the net and the soil surface.
 - c. When open-weave nets are used, lime, fertilizer and seed may be applied either before or after laying the net. When excelsior matting is used, they must be applied before the mat is laid.
8. Laying the Net:
 - a. Start laying the net from top of channel or top of slope and unroll down-grade.
 - b. Allow to lay loosely on soil - do not stretch.
 - c. To secure net: Upslope ends of net should be buried in a slot or trench no less than six (6) inches deep. Tamp earth firmly over net. Staple the net every twelve (12) inches across the top end.
 - d. Edges of net shall be stapled every three (3) feet. Where two strips of net are laid side by side, the adjacent edges shall be overlapped three (3) inches and stapled together.
 - e. Staples shall be placed down the center of net strips at 3-foot intervals. Do not stretch net when applying staples.
9. Joining strips
 - a. Insert new roll of net in trench, as with upslope ends of net. Overlap the end of the previous roll eighteen (18) inches, turn under six (6) inches and staple across end of roll just below anchor slot and at the end of the turned-under net every twelve (12) inches.
10. At bottom of slopes
 - a. Lead net out onto a level area before anchoring. Turn ends under six (6) inches and staple across end every twelve (12) inches.
11. Check slots
 - a. On highly erodible soils and on slopes steeper than 4:1, erosion check slots should be made every fifteen (15) feet. Insert a fold of

net into a six (6) inch trench and tamp firmly. Staple at twelve (12) inch intervals across the downstream portion of the net.

12. Rolling
 - a. After installation, stapling and seeding, net should be rolled to ensure firm contact between net and soil.
13. All mulches should be inspected periodically, in particular after rainstorms, to check for rill erosion. Where erosion is observed, additional mulch should be applied. Net should be inspected after rainstorms for dislocation or failure. If washouts or breakage occur, re-install net as necessary after repairing damage to the slope. Inspections should take place up until grasses are firmly established. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface; repair as needed.

3.5 TEMPORARY SEEDING

A. Site Preparation

1. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring.
2. Install the needed erosion control practices prior to seeding such as diversions, temporary waterways for diversion outlets and sediment basins.

B. Seedbed Preparation

1. Lime (in lieu of a soil test recommendation) shall be applied on acid soil (pH 5.5 or lower) and subsoil at a rate of 100 pounds per 1000 square feet or two tons per acre of agricultural ground limestone. For best results, make a soil test.
2. Fertilizer (in lieu of a soil test recommendation) shall be applied at a rate of 12-15 pounds per 1000 square feet or 500-600 pounds per acre of 10-10-10 or 12-12-12 analysis or equivalent.
3. Work the lime and fertilizer into the soil with a disk harrow, springtooth harrow or similar tools to a depth of two inches. On sloping areas, the final operation shall be on the contour.

C. Seeding

1. Apply the seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydroseeder (slurry may include seed and fertilizer) preferably on a firm, moist seedbed. Seed wheat or rye no deeper than one (1) inch. Seed ryegrass no deeper than one-fourth ($\frac{1}{4}$) inch.
2. When feasible, except where a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller or light drag. On sloping land, seeding operations should be on the contour wherever possible.

D. Mulching

1. Mulch shall be applied to protect the soil and provide a better environment for plant growth.

2. Mulch shall consist of small grain straw (preferably wheat or rye) and shall be applied at the rate of two tons per acre or 100 pounds (two to three bales) per 1000 square feet.
3. Spread the mulch uniformly by hand or mechanically so the soil surface is covered.
4. Mulch Anchoring Methods
 - a. Mechanical - use a disk, crimper or similar type tool set straight to punch or anchor the mulch material into the soil.
 - b. Asphalt Emulsion - apply at the rate of 160 gallons per acre into the mulch as it is being applied.
 - c. Mulch Nettings - use according to the manufacturer's recommendations. Use in areas of water concentration to hold mulch in place.

E. Irrigation

1. If soil moisture is deficient, supply new seedlings with adequate water for plant growth until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

END OF SECTION 015713

SECTION 016600 - PRODUCT HANDLING AND PROTECTION

PART 1 - GENERAL

1.1 DELIVERY AND STORAGE OF MATERIALS

- A. The Contractor shall be responsible for delivery and storage of all materials.
- B. The Contractor shall coordinate with the Engineer on the arrangement for storing construction materials and equipment. Deliveries of all construction materials and equipment should be made at suitable times.
- C. The Contractor shall store all materials required for the performance of this contract at sites approved by the Engineer.
- D. All stockpiles shall be neat, compact, completely safe, and barricaded with warning lights if necessary.
- E. Precautions shall be taken so that no shade trees, shrubs, flowers, sidewalks, driveways or other facilities will be damaged by the storage of materials. The Contractor shall be responsible for the restoration of all stockpile sites to their original condition.
- F. Materials, tools and machinery shall not be piled or placed against shade trees, unless they shall be amply protected against injury therefrom. All materials, tools, machinery, etc. stored upon public thoroughfares must be provided with red lights at night time so as to warn the traffic of such obstruction.
- G. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, shall again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the construction site may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefore must be provided by the Contractor at his expense. Private property shall not be used for storage purposes without written permission of the property owner or lessee, and copies of such written permission shall be furnished the Engineer. All storage sites shall be restored to their original condition by the Contractor at his expense.

END OF SECTION 016600

SECTION 017800 - FINAL COMPLIANCE AND SUBMITTALS

PART 1 - GENERAL

- 1.1 The following forms and related sign-offs shall be documented in accordance with provisions of the contract. These forms shall be completed by the Contractor and approved by the Owner before final retainer is approved for release. Forms for Items A to I will be attached to the Contractor's executed copy of the contract.
- A. Certificate of Substantial Completion (To be submitted at time of Substantial Completion).
 - B. Contractor's Certification of Completion.
 - C. Contractor's Affidavit of Prevailing Wage.
 - D. Consent of Surety Company for Final Payment.
 - E. Affidavit of Final Acceptance Date and Correction Period.
 - F. Before the OWNER will approve and accept the work and release the retainer, the CONTRACTOR will furnish the OWNER a written report indicating the resolution of any and all property damage claims filed with the CONTRACTOR by any party during the construction period. The information to be supplied shall include, but not be limited to, name of claimant, date filed with CONTRACTOR, name of insurance company and/or adjuster handling claim, how claim was resolved and if claim was not resolved for the full amount, a statement indicating the reason for such action.
 - G. American Iron and Steel Step Certification SR-EPA.62 (Applicable for WPCLF & WSRLA funded projects only).
 - H. Build America, Buy America Certifications (When Applicable).
 - I. Subcontractor List, Specification Section 011100 - 2 form (Applicable for CDBG funded projects only).

END OF SECTION 017800

SECTION 017839 - PROJECT RECORDS, DRAWINGS

PART 1 - GENERAL

1.1 RECORD DRAWINGS

- A. The Contractor shall furnish an authentic set of marked-up drawings showing the installation insofar as the installation shall have differed from the Engineer's drawings. The drawings shall be delivered to the Engineer for making revisions to the original drawings immediately after final acceptance by the Owner.
- B. The Contractor shall furnish dimensioned drawings indicating locations of all underground mechanical and electrical facilities.

1.2 SERVICE CONNECTION RECORDS

- A. The Contractor shall record the location of all service and property connections, new or existing, made to utilities constructed under this contract. Such records shall be turned over to the Owner upon completion of the work. The cost of making such records shall be included in the various unit or lump sum prices stipulated for the various items of the work.
- B. The location of each sewer connection as measured along the sewer from the nearest downstream manhole and its description with respect to the sewer shall be recorded. The record shall include the depth of new stubs for future connections and the depth of existing connections as measured from the surface grade. Also, the use of any vertical riser pipe shall be noted.
- C. The location of each water connection as measured along the water line from the nearest fire hydrant.

END OF SECTION 017839

SECTION 024119 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. This section includes removal of pavement, piping, chambers, structures, other items as noted on the plans, and equipment and labor necessary to clear space for new construction and/or to rehabilitate existing construction.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

- A. State and local code requirements shall control the disposal of debris resulting from the removal operation.

1.4 PROTECTION

- A. Structures shall be removed in such a manner as not to damage portions of the existing structure which are to remain in place.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 PAVEMENTS, SIDEWALKS, CURBING, SIMILAR STRUCTURES

- A. Removal of existing pavements, sidewalks, curbing, and similar structures shall end at an existing joint or a sawed joint. Sawed joints shall be straight, neat and free from chipped or damaged edges.
- B. For removal of reinforced or non-reinforced concrete, the minimum depth of saw cut shall be 3 in.
- C. For removal of reinforced concrete, the depth of saw cut shall be sufficient to cut the steel.
- D. If the concrete is coated with a bituminous surface or other material, the depth shall be sufficient to cut into the concrete, not including the coating depth, as specified above.

3.2 EXCAVATION OF RIGID PAVEMENT

- A. The Contractor shall excavate rigid pavement, consisting of concrete or concrete base with a wearing surface of brick or bituminous concrete, wherever such excavation is required for the purpose of this Contract.
- B. Pavement shall be excavated to neat lines and, only to widths required for trenches, for pipe laying and for construction of structures. Adequate provision shall be made to prevent settlement and breakage of pavement beyond the approved limits of excavation.
- C. All pavement broken or damaged beyond the limits above stated, or the approved extension thereof, shall be replaced by the Contractor at his expense.

3.3 CATCH BASINS, INLETS AND SIMILAR STRUCTURES

- A. Existing drainage structure designated by the Engineer to be removed shall be completely removed.
- B. Abandoned sewers shall be sealed and made watertight with approved masonry bulkheads.
- C. All castings salvaged from abandoned or removed drainage structures shall remain the property of the Owner and shall be cleaned and transported by the Contractor to a site designated by the Engineer or incorporated in the work where called for on the Drawings, scheduled, or so directed.

3.4 FENCE

- A. Where so required by the Drawings, existing fence shall be carefully dismantled and stored for reuse or for salvage by the Owner.
- B. Wood posts and other materials not considered salvageable by the Engineer shall be disposed of by the Contractor.
- C. The Contractor will be required to replace, at no cost to the Owner, material lost or damaged by negligence or by the use of improper methods.

3.5 EQUIPMENT REMOVAL

- A. All equipment, valves, piping, fittings, and miscellaneous steel structures that are removed shall remain the property of the Owner and shall be stored at site selected by the Owner. The Owner reserves the right to require the Contractor to dispose of certain unwanted portions of removed equipment and materials. The Owner shall have the right to reject any or all materials removed during construction, and the Contractor shall haul away and dispose of these materials in a suitable manner at no additional cost to the Owner.

3.6 DISPOSAL OF DEBRIS

- A. All debris resulting from demolition operations; i.e., broken concrete, masonry, pipe, miscellaneous metal, trees and brush, equipment, etc., shall be disposed of offsite.
- B. The Contractor shall police the hauling of debris to insure that all spillage from haul trucks is promptly and completely removed.

3.7 BACKFILLING

- A. All trenches, holes, and pits resulting from the removal and abandonment of any structure or obstruction shall be backfilled and compacted in accordance with the requirements of Section 312323.14.

END OF SECTION 024119

SECTION 030000 - CONCRETE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

- 1. Section 013319 – Field Testing Requirements

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including form work, reinforcing, mix design, placement procedures and finishes.

- 1. Extent of concrete work is shown on drawings.
 - 2. Concrete paving and walks are specified in Division 2.
 - 3. Precast concrete is specified in other Division-3 sections.
 - 4. Mechanical finishes and concrete floor toppings are specified in other Division-3 sections.
 - 5. For Pre-cast Box Culvert Sections and Cast-in-Place Chambers, refer to plan details and notes. In particular;
 - a. delegated structural design by an Ohio PE,
 - b. HL-93 loading,
 - c. precast box culvert compliance,
 - d. minimum section quantities/dimensions,
 - e. joint sealant and bolted connection details,
 - f. installation of pipe or box conduit into junction chambers.

1.3 SUBMITTALS

- A. Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others as requested by Engineer.
- B. Shop Drawings; Reinforcement: Submit original shop drawings prepared for fabrication, bending, and placement of concrete reinforcement. Comply with ACI Detailing Manual showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- C. Shop Drawings; Form work: Submit shop drawings prepared by a registered Professional Engineer for fabrication and erection of forms for specific finished concrete surfaces. Show form construction including jointing, special form joint or reveals, location and pattern of form tie placement, and other items which affect exposed concrete visually.

1. Engineer's review is for general architectural applications and features only. Design of form work for structural stability and efficiency is Contractor's responsibility.
- D. Samples: Submit samples of materials as requested by Engineer, including names, sources, and descriptions.
- E. Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design tests.
1. The proposed mix design submittal(s) shall follow the procedures of Chapter 5, Sections 5.2 to 5.3 of ACI-318.
 2. Reference should be made to ACI-211.5R "Guide for Submittal of Concrete Proportions" for the required submittal information. Sample forms for presenting the necessary information can be found in the addendum at the end of this section. Example Form B should follow a completed Example A in the submittal when laboratory trial batches are used to document a water-cementitious materials ratio curve.
 3. Additional data summarizing the past performance records should be an integral part of the submittal if the submittal is based on past performance with the proposed materials and proportions.
- F. Materials Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Engineer. Materials certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, latest revisions, except where more stringent requirements are shown or specified:
1. ACI 301 "Specifications for Structural Concrete for Buildings."
 2. ACI 318 "Building Code Requirements for Reinforced Concrete."
 3. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
 4. ACI 347 "Guide to Form work for Concrete."
 5. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- B. Materials and installed work may require testing and retesting at anytime during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.
- C. Engage a testing agency acceptable to Engineer to perform initial material evaluation and certification tests for mix designs and to design concrete mixes.
- D. Mockup: Cast mockup of size indicated or as required to demonstrate typical joints, form tie spacing, and proposed surface finish, texture, and color. Maintain sample panel exposed to view for duration of project, after Engineer's acceptance of visual qualities.
1. Demolish mockup and remove from site when directed by Engineer.

- E. Pre-installation Conference: Conduct conference at project site to comply with requirements of Division 1 Section "Project Meetings" and the following:
 - 1. At least 35 days prior to submitting design mixes, conduct a meeting to review detailed requirements for preparing concrete design mixes and to determine procedures for satisfactory concrete operations. Review requirements for submittals, status of coordinating work, and availability of materials. Establish preliminary work progress schedule and procedures for materials, inspection, testing and certifications. Require representatives of each entity directly concerned with cast-in-place concrete to attend conference, including, but not limited to, the following:
 - a. Contractor's Superintendent
 - b. Agency responsible for concrete design mixes.
 - c. Agency responsible for field quality control.
 - d. Ready-mix concrete producer.
 - e. Concrete Subcontractor
 - f. Primary admixture manufactures.

1.5 PROJECT CONDITIONS

- A. Protection of Footings Against Freezing: Cover completed work at footing level with sufficient temporary or permanent cover as required to protect footings and adjacent subgrade against possibility of freezing; maintain cover for time period as necessary.
- B. Protect adjacent finish materials against spatter during concrete placement.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
 - 1. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two (2) edges and one side for tight fit.
- C. Forms for Textured Finish Concrete: Units of face design, size, arrangement, and configuration to match Engineer's control sample. Provide solid backing and form supports to ensure stability of textured form liners.
- D. Forms for Cylindrical Columns and Supports: Metal, fiberglass reinforced plastic, or paper or fiber tubes. Construct paper or fiber tubes of laminated plies using water-resistant

adhesive with wax-impregnated exterior for weather and moisture protection. Provide units with sufficient wall thickness to resist loads imposed by wet concrete without deformation.

- E. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
- F. Form Ties: Factory-fabricated, adjustable-length, snapoff metal or glass fiber-reinforced plastic form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units which will leave no metal closer than 1-1/2" to the exposed surface.
 - 1. Provide ties which, when removed, will leave holes not larger than 1" diameter in concrete surface.
 - 2. All form ties shall have a factor of safety of two (2) to determine the recommended safe working load.

2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Galvanized Reinforcing Bars: ASTM A 767, Class II (2.0 oz. zinc psf) hot-dip galvanized, after fabrication and bending.
- C. Epoxy-Coated Reinforcing Bars: ASTM A 775.
 - 1. Repair of damaged epoxy-coating - When required, damaged epoxy-coating shall be repaired with patching material conforming to ASTM A 775. Repair shall be done in accordance with the patching material manufacturer's recommendations.
- D. Steel Wire: ASTM A 82, plain, cold-drawn steel.
- E. Welded Wire Fabric: ASTM A 185, welded steel wire fabric. (Flat sheets only)
- F. Welded Deformed Steel Wire Fabric: ASTM A 497.
- G. Epoxy - Coated Welded Wire Fabric: ASTM A884, Class A.
- H. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications.
 - 1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I, II or I/II and ASTM C595M, Type IP, unless otherwise specified. (See Table I, Concrete Requirements).
 - 1. Use one brand of cement throughout project, unless otherwise acceptable to Engineer.
- B. Fly Ash: ASTM C 618, Class F.
 - 1. Limit use of fly ash to not exceed 25% of cement content by weight.
- C. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120.
 - 1. Limit use of granulated blast-furnace slag to not exceed 30% of cement content by weight.
- D. Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete, with nominal maximum aggregate size of 1 inch.
 - 1. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.
 - 2. Local aggregates not complying with ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to Engineer.
 - 3. Combined Aggregate Gradation: Well graded from coarsest to finest with not more than 18 percent and not less than 8 percent retained on an individual sieve, except that less than 8 percent may be retained on coarsest sieve and on No. 50 (0.3-mm) sieve, and less than 8 percent may be retained on sieves finer than No. 50 (0.3 mm).
- E. Lightweight Aggregates: ASTM C 330.

Maximum nominal aggregate size of 1 inch.
- F. Water: Drinkable and complying with ASTM C94.
- G. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Air-Mix"; Euclid Chemical Co.
 - b. "Sika Aer"; Sika Corp.
 - c. "MB-VR or MB-AE"; Master Builders.
- H. Water-Reducing Admixture: ASTM C 494, Type A, and containing not more than 0.1 percent chloride ions.
 - 1. Products: Subject to compliance with requirements, provide one of the following:

- a. "WRDA"; W.R. Grace.
 - b. "Eucon WR-75"; Euclid Chemical Co.
 - c. "Pozzolith Normal"; Master Builders.
- I. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F and containing not more than 0.1 percent chloride ions.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Sikament 300"; Sika Chemical Corp.
 - b. "Eucon 37"; Euclid Chemical Co.
 - c. "Rheobuild or Polyheed"; Master Builders.
- J. Water-Reducing, Non-Chloride Accelerator Admixture: ASTM C 494, Type E, and containing not more than 0.1 percent chloride ions.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Accelguard 80"; Euclid Chemical Co.
 - b. "Pozzutec 20"; Master Builders.
 - c. "Daraset"; W.R. Grace & Co.
- K. Water-Reducing, Retarding Admixture: ASTM C 494, Type D, and containing not more than 0.1 percent chloride ions.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Pozzolith"; Master Builders.
 - b. "Eucon Retarder 75"; Euclid Chemical Co.
 - c. "Plastiment"; Sika Chemical Co.
- L. Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Catexol 1000CL; Axim Concrete Technologies.
 - b. MCI 2000 or MCI 2005; Cortec Corporation.
 - c. DCI or DCI-S; W.R. Grace & Co., Construction Products Div.
 - d. Rheocrete 222+; Master Builders, Inc.
 - e. FerroGard-901; Sika Corporation.
- M. Prohibited Admixtures: Calcium chloride thiocyanates or admixtures containing more than 0.1 percent chloride ions are not permitted.

N. Fiber Reinforcement:

1. Synthetic fiber reinforcing shall be added to the concrete for the areas so indicated in the drawings. Only fibers designed and manufactured specifically for use in concrete shall be acceptable as secondary reinforcement, complying with ASTM C1116, not less than 3/4 inch long.
2. The fibers may be added at the batch plant. The incorporation of said fibers shall be documented on the delivery ticket from the ready mix producer. Fibers shall be added to the concrete in strict accordance with manufacturer's printed instructions. The minimum dosage rate shall be 1.5 lbs/cubic yard.
3. Nylon fibers containing 100% virgin nylon monofilaments shall be utilized to impart a "non-hairy" surface to the finished concrete.
4. Products: Subject to compliance with requirements, provide the following fibrous reinforcement or approved equal:
 - a. Nycon Fiber; Nycon, Inc.
 - b. Nylo-Mono; Forta Corp.
 - c. Fibrasol N; Axim Concrete Technologies

2.4 RELATED MATERIALS

- A. Reglets: Where resilient or elastomeric sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 26 gage galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.
- B. Waterstops: Provide waterstops at construction joints and other joints as indicated.
- C. Granular Base: Evenly graded mixture of fine and coarse aggregates to provide, when compacted, a smooth and even surface below slabs on grade.
- D. Vapor Retarder: Provide vapor retarder cover, ASTM E1745 Class C, over prepared base material where indicated below slabs on grade. Use only materials which are resistant to deterioration when tested in accordance with ASTM E 154, as follows:
 1. Polyethylene sheet not less than 10 mils thick.
 2. Water resistant barrier paper consisting of heavy Kraft papers laminated together with glass fiber reinforcement and over-coated with black polyethylene on each side.
 - a. Product: Subject to compliance with requirements, provide Moistop Ultra 10 by Fortifiber Corporation, Stego Wrap 10-mil by Stego Industries or equal.
- E. Non-Shrink Grout: CRD-C 621 and ASTM C-1107, factory pre-mixed grout.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Non-metallic
 - 1) "Set Grout"; Master Builders.
 - 2) "Euco-NS"; Euclid Chemical Co.

3) "Five Star Grout"; U.S. Grout Corp.

- F. Non-slip Aggregate Finish: Provide fused aluminum oxide grits, or crushed emery, as abrasive aggregate for non-slip finish with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide. Use material that is factory-graded, packaged, rust-proof, and non-glazing, and is unaffected by freezing, moisture, and cleaning materials.
- G. Colored Wear-Resistant Finish: Packaged, dry, combination of materials, consisting of Portland cement, graded quartz aggregate, coloring pigments, and plasticizing admixture. Use coloring pigments that are finely ground, non-fading mineral oxides, interground with cement. Color as selected by Engineer, unless otherwise indicated.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Colorcron"; Master Builders.
 - b. "Surflex"; Euclid Chemical Co.
 - c. "Lithochrome"; L.M. Scofield Co.
- H. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- I. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
 - 1. Waterproof paper.
 - 2. Polyethylene film.
 - 3. Polyethylene-coated burlap.
- J. Liquid Membrane-Forming Curing Compound: Liquid type membrane- forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.55 kg./sq. m. when applied at 200 sq ft./gal.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Masterkure"; Master Builders.
 - b. "Ecocure"; Euclid Chemical Co.
 - c. "Horn Clear Seal"; A.C. Horn, Inc.
- K. Underlayment Compound: Freeflowing, self-leveling, pumpable cementitious base compound for applications from 1 inch thick to feathered edges.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Flo-Top"; Euclid Chemical Co.
 - b. "Underlayment 110," Master Builders, Inc.
 - c. "Thoro Underlayment Self-Leveling"; Thoro System Products.
- L. Bonding Compound: Polyvinyl acetate or acrylic base.
 - 1. Products: Subject to compliance with requirements, provide one of the following:

- a. Polyvinyl Acetate (Interior Only):
 - 1) "Euco Weld"; Euclid Chemical Co.
 - 2) "Weldcrete"; Larsen Products Corp.
 - 3) "Everweld"; L&M Construction Chemicals, Inc.
 - b. Acrylic or Styrene Butadiene:
 - 1) "Day-Chem AD Bond"; Dayton Superior Corp.
 - 2) "Everbond"; L & M Construction Chemicals.
 - 3) "SBR Latex"; Euclid Chemical Co.
- M. Epoxy Adhesive: ASTM C 881, two component material suitable for use on dry or damp surfaces. Provide material "Type," "Grade," and "Class" to suit project requirements.
- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. "Epoxite Binder 2390"; A.C. Horn, Inc.
 - b. "Sikadur 32 Hi-Mod"; Sika Chemical Corp.
 - c. "Euco Epoxy 452 or 620"; Euclid Chemical Co.

2.5 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301 and ACI 211. If the trial batch method is used, use an independent testing facility acceptable to Engineer for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Engineer.
 - 1. Limit use of fly ash to not exceed 25 percent of cement content by weight.
- B. Submit written reports to Engineer and Structural Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Engineer.
- C. Design mixes to provide normal weight concrete with the following properties, as indicated in Table I.:

TABLE 1

CONCRETE REQUIREMENTS

Concrete Class	Cement Type	Min. 28-Day Compressive Strength PSI	*Max. Water-Cement Ratio	Min. Cement Content Sacks	Slump Min.	Inch Max.	Entrained Air %
A	I	4000	0.45	6	-	-	6±1
B	I	2000	0.74	4-1/2	2	6	5±1-1/2
C	I	4000	0.50	6.38	1	4	6±2

D II or IP 4000 0.45 6 - - 6±1

*Maximum Water - Cementitious Materials Ratio

1. All reinforced concrete shall be Class A, except as otherwise specified or shown on the drawings.
2. Concrete used for mud mats, fill and channeling in manholes and chambers shall be Class B unless otherwise noted on the drawings.
3. Class C concrete conforming to ODOT 499 (Class C) shall be used for all concrete pavement, curbing, driveways, and sidewalks, unless noted otherwise on the drawings.
4. Class B concrete may be used for encasing pipelines, fill, and pipe bedding.
5. Class B concrete shall be used as concrete fill in concrete tanks for shaping or sloping bottoms.

a. The following steps shall be taken for installation of the Class B concrete:

- 1) Scrub concrete slabs and/or walls with a stiff wire brush and streams of clean water as a minimum, to remove laitance.
- 2) Apply a bonding agent in accordance with the manufacturer's surface preparation and application recommendations.
- 3) The Class B concrete shall then be placed and screeded to bring the surface to final grade.

6. Class D concrete shall be used for sewerage treatment plants and sewerage pump stations, as noted on the drawings.

D. Lightweight Concrete: Lightweight aggregate and concrete shall conform to ASTM C 330. Proportion mix to produce concrete with a minimum compressive strength of 3000 psi at 28 days and a calculated equilibrium unit weight of 110 pcf plus or minus 3 pcf as determined by ASTM C 567. Concrete slump at the point of placement shall be the minimum necessary for efficient mixing, placing, and finishing. Maximum slump shall be 6 inches for pumped concrete and 5 inches elsewhere. Air entrain concrete exposed to weather according to ACI 301 requirements.

E. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in work.

F. Admixtures:

1. Use high range water-reducing admixture (super plasticizer) in Classes A and D concrete unless noted otherwise.
2. Use non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).

3. Use air-entraining admixture in all concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content within limits shown in Table I.
4. Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions.
5. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as shown in Table I:
 - a. Concrete containing HRWR admixture (super-plasticizer): Not more than 8" after addition of HRWR to site-verified 2"-3" slump concrete.

2.6 CONCRETE MIXING

- A. Job-Site Mixing: Mix materials for concrete in appropriate drum type batch machine mixer. For mixers of one cu. yd., or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released. For mixers of capacity larger than one cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yd., or fraction thereof.
 1. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.
- B. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
 1. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.
 - a. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 GENERAL

- A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3.2 FORMS

- A. Design, erect, support, brace, and maintain form work to support vertical and lateral, static, and dynamic loads that might be applied until such loads can be supported by concrete structure. Construct form work so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain form work construction tolerances complying with ACI 347.

- B. Design form work to be readily removable without impact, shock, or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Construct forms to sizes, shapes, lines, and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.
- E. Provide temporary openings where interior area of form work is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.
- F. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- G. Provisions for Other Trades: Provide openings in concrete form work to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retightening forms and bracing after concrete placement if required to eliminate mortar leaks and maintain proper alignment.

3.3 VAPOR RETARDER INSTALLATION

- A. Following leveling and tamping of granular base for slabs on grade, place vapor retarder sheeting with longest dimension parallel with direction of pour.
- B. Lap joints 6" and seal with manufacturer's recommended mastic or pressure-sensitive tape.

3.4 PLACING REINFORCEMENT

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports, and as herein specified.
 - 1. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations. Repair damages before placing concrete.

- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement by form work, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in longest lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.
- F. Epoxy - Coated Reinforcing Steel:
 - 1. Epoxy-coated reinforcing bars supported from form work shall rest on coated wire bar supports, or on bar supports made of dielectric material or other acceptable materials. Wire bar supports shall be coated with dielectric material for a minimum distance of 2 inches from the point of contact with the epoxy-coated reinforcing bars. Reinforcing bars used as support bars shall be epoxy-coated. In walls having epoxy-coated reinforcing bars, spreader bars where specified by the Engineer, shall be epoxy-coated. Proprietary combination bar clips and spreaders used in walls with epoxy-coated reinforcing bars shall be made of corrosion-resistant material.
 - 2. Epoxy-coated reinforcing bars - Equipment for handling epoxy-coated bars shall have protected contact areas. Bundles of coated bars shall be lifted at multiple pick-up points to minimize bar-to-bar abrasion from sags in the bundles. Coated bars or bundles of coated bars shall not be dropped or dragged. Coated bars shall be stored on protective cribbing. Fading of the color of the coating shall not be cause for rejection of epoxy-coated reinforcing bars. Coating damage due to handling, shipment and placing need not be repaired in cases where the damaged area is 0.1 square inches or smaller. Damaged areas larger than 0.1 square inches shall be repaired in accordance with the epoxy material manufacturer's recommendations. The maximum amount of damage including repaired and unrepaired areas shall not exceed 2 percent of the surface area in each linear foot of each bar.

3.5 JOINTS

- A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Engineer.
 - 1. Provide keyways at least 1-1/2" deep in construction joints in walls, slabs, and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.

2. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints, except as otherwise indicated.
- B. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.
 - C. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.
 - D. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use inserts 1/4 of slab depth, unless otherwise indicated.
 1. Form contraction joints by inserting premolded plastic strips into fresh concrete until top surface of strip is flush with slab surface.
 2. Follow the directions of Insert Manufacturer for finishing the slab and joints.
 - E. If joint pattern not shown, provide joints not exceeding 15' in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third-bays).

3.6 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto. Electrical conduit shall not be embedded in concrete.
- B. Install reglets to receive top edge of foundation sheet waterproofing, and to receive thru-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.
- C. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units to support screed strips using strike-off templates or compacting type screeds.

3.7 PREPARATION OF FORM SURFACES

- A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before placing reinforcement.
- C. Thin form-coating compounds only with thinning agent of type, amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess

form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

- D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel form work is not acceptable.

3.8 CONCRETE PLACEMENT

- A. **Preplacement Inspection:** Before placing concrete, inspect and complete form work installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

- 1. Apply temporary protective covering to lower 2' of finished walls adjacent to poured floor slabs and similar conditions, and guard against spattering during placement.

- B. **General:** Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.

- 1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

- C. **Placing Concrete in Forms:** Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

- 1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
 - 2. Do not use vibrators to transport concrete inside forms. 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 6" 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.

- D. **Placing Concrete Slabs:** Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

- 1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

3. Maintain reinforcing in proper position on chairs during concrete placement operations.
- E. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.
1. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C), and not more than 80 deg F (27 deg C) at point of placement.
 - a. The concrete shall be maintained within this temperature range for not less than seven (7) days.
 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 or against cold reinforcing steel.
 3. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
- F. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 deg F (32 deg C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
 2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
 3. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
 4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Engineers.

3.9 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system. This is an as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch

defective areas with fins or other projections completely removed and smoothed; provide smooth rubbed finish to smooth form finish. Refer to "Concrete Surface Repairs."

- C. Smooth Rubbed Finish: Provide smooth rubbed finish to scheduled concrete surfaces, which have received smooth form finish treatment.
 - 1. Scarify or roughen entire surface by grinding or similar effective means.
 - 2. Combined one part Portland cement to 1-1/2 parts fine sand by volume and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to form the consistency of thick paint. Blend standard Portland cement and white Portland cement, amounts determined by trial patches, so that final color of dry grout will match adjacent surfaces.
 - 3. Thoroughly wet concrete surfaces and apply grout to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.
 - 4. Repeat the above process if necessary to fill voids or bug holes and obtain a consistent match to adjacent surfaces, subject to acceptance of the Engineer.
- D. Grout Cleaned Finish: Provide grout cleaned finish on scheduled concrete surfaces which have received smooth form finish treatment.
 - 1. Scarify or roughen entire surface by grinding or similar effective means.
 - 2. Apply Thoroseal plaster mix coating by Thoro System Products or approved equivalent with an approximate thickness of 1/8-inch to 1/4-inch.
 - 3. Follow the manufacturer's recommendations and guidelines regarding surface preparation, application methods and curing.
 - 4. Repeat the above process if necessary to fill voids or bug holes and obtain a consistent match to adjacent surfaces, subject to acceptance of the Engineer.
- E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.10 MONOLITHIC SLAB FINISHES

- A. Scratch Finish: Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, Portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.
 - 1. After placing slabs, plane surface to tolerances for floor flatness F(F) 15 and floor levelness F(L) 13, measured according to ASTM E 1155. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set, with stiff brushes, brooms, or rakes.
- B. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo, and as otherwise indicated.

1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to tolerances of F(F) 18 F(L) 15. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- C. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system.
1. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of F(F), 20 and F(L) 17, measured according to ASTM E1155. Grind smooth surface defects which would telegraph through applied floor covering system.
- D. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.
- E. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.
- F. Non-slip Aggregate Finish: Apply non-slip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and elsewhere as indicated.
1. After completion of float finishing, and before starting trowel finish, uniformly spread 25 lbs. of dampened non-slip aggregate per 100 sq. ft. of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as herein specified.
 2. After curing, lightly work surface with a steel wire brush, or an abrasive stone, and water to expose non-slip aggregate.
- G. Colored Wear-Resistant Finish: Provide colored wear-resistant finish to monolithic slab surface indicated.
1. Apply dry shake materials for colored wear-resistant finish at rate of not less than 100 lbs. per 100 sq. ft., unless greater amount is recommended by material manufacturer.
 2. Immediately following first floating operation, uniformly distribute approximately 2/3 of required weight of dry shake material over concrete surface, and embed by means of power floating. Follow floating operation with second shake application,

- uniformly distributing remainder of dry shake material with overlapping applications, and embed by power floating.
3. After completion of broadcasting and floating, apply trowel finish as herein specified. Cure slab surface with curing compound recommended by dry shake hardener manufacturer. Apply curing compound immediately after final finishing.

3.11 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Protect concrete from rapid moisture loss before and during finishing operations.
 1. The evaporation graph, Figure 1, of ACI 308 - Curing Concrete, shall be used to determine the evaporation rate during concrete placement. If the rate of evaporation equals or exceeds 0.2 lbs/sq.ft./hr., steps shall be taken to prevent excessive evaporation from the surface.
 2. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing.
 - a. Initial curing may be any of the methods listed herein that maintain a satisfactory moisture content and temperature.
 3. Begin final curing procedures, if they differ from initial curing, immediately following initial curing and before concrete has dried. Continue curing for at least seven (7) days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
- B. Curing Methods: Perform curing of all structural concrete as herein specified.
 1. Provide moisture curing by following methods.
 - a. Keep concrete surface continuously wet by covering with water.
 - b. Continuous water-fog spray.
 - c. Cover concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.
 2. Provide moisture-cover curing as follows:
 - a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- C. Provide curing and sealing compound to pavement, walks, and curbs only, as follows:
 1. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours) and after surface water sheen has

disappeared. Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within three (3) hours after initial application. Maintain continuity of coating and repair damage during curing period.

- D. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs, and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- E. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by moist curing methods.
 - 1. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.

3.12 SHORES AND SUPPORTS

- A. Comply with ACI 347 for shoring and reshoring in multistory construction, and as herein specified.
- B. Extend shoring from ground to roof for structures four (4) stories or less, unless otherwise permitted.
- C. Extend shoring at least three (3) floors under floor or roof being placed for structures over four (4) stories. Shore floor directly under floor or roof being placed, so that loads from construction above will transfer directly to these shores. Space shoring in stories below this level in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members where no reinforcing steel is provided. Extend shores beyond minimums to ensure proper distribution of loads throughout structure.
- D. Remove shores and reshore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support work without excessive stress or deflection.
 - 1. Keep reshores in place a minimum of 15 days after placing upper tier, and longer if required, until concrete has attained its required 28-day strength and heavy loads due to construction operations have been removed.

3.13 REMOVAL OF FORMS

- A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for five (5) days after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days or until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine

potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members. Lab cured cylinders will not be considered.

- C. Form facing material may be removed five (5) days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.14 RE-USE OF FORMS

- A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new form work.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Engineer.

3.15 MISCELLANEOUS CONCRETE ITEMS

- A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment with template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.
 - 1. Grout base plates and foundations as indicated, using specified non-shrink grout. Use non-metallic grout for exposed conditions, unless otherwise indicated.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads and landings and associated items. Cast-in safety inserts and accessories as shown on drawings. Screed, tamp, and finish concrete surfaces as scheduled. Cure concrete as herein specified.
- E. Reinforced Masonry: Provide concrete grout conforming to ASTM C476 for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

3.16 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Engineer.
1. Saw-cut out honeycomb, rock pockets, voids over 1/4" in any dimension, down to solid concrete but, in no case to a depth of less than 1." Make edges of cuts slightly undercut 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.
 2. For exposed-to-view surfaces, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- B. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with Portland Cement patching mortar, or precast cement cone plugs secured in place with bonding agent. When other materials are used, apply them in accordance with manufacturer's recommendations.
1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
 2. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.
 3. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" 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.
 4. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
 5. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Engineer.
 6. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and

finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.
8. Perform structural repairs with prior approval of Engineer or Structural Engineer for method and procedure, using specified epoxy adhesive and mortar.
9. Repair methods not specified above may be used, subject to acceptance of Engineer.
10. Underlayment Application: Leveling of floors for subsequent finishes may be achieved by use of specified underlayment material.

3.17 THROUGH SECTION CONCRETE CRACK REPAIRS

A. Sealing through wall or slab cracks.

1. Seal cracks for a water-tight or structurally bonded repair with epoxy or chemical grouting procedures.
 - a. The Contractor shall make proper repairs with epoxy injection or chemical injection with a moisture reactive hydrophilic polyurethane foam grout, as directed by the Engineer.

3.18 MUD MATS

A. Where called for on the plans or as directed by the Engineer, the Contractor shall construct concrete mud mats immediately after cleaning the excavation bottom, to preserve the bearing surface condition. Concrete for mud mats shall be not less than 3 in. thick. Bottom of excavation shall be free of water, mud and loose material prior to mud mat placement. See Section 310000.

1. Mud mat concrete shall be cast against the side walls of all excavations to completely seal the bottom.

ADDENDUM
EXAMPLE FORM A

CONCRETE SUPPLIER: _____

PROJECT: _____ CONTRACTOR: _____

MIXTURE ID: _____ SPECIFIED f'c: _____ PSI

MATERIAL MIXTURE PROPORTIONS lbs-mass/cu.yd. (pcy)

1.0 Cement Type _____ Source: _____

Sp. Gr. _____ pcy _____ cu. ft.

1.1 Other Cementitious Materials: _____ Class: _____ Source: _____

Sp. Gr. _____ pcy _____ cu. ft.

2.0 Aggregate (No. 1) Type: _____ Size: _____ Source: _____

SSD Sp. Gr. _____ pcy _____ cu. ft.

Dry Rodded Unit Wt.: _____ pcf

Alternate (No. 1) Lightweight Aggregate Type: _____ Size: _____ Source: _____

Sp. Gr. Factor _____ over dry pcy _____ cu. ft.

Loose Unit Wt. _____ pcf Estimated Wet _____ pcf

2.1 Aggregate (No. 2) Type: _____ Size: _____ Source: _____

SSD Sp. Gr. _____ pcy _____ cu. ft.

Dry Rodded Unit Wt.: _____ pcf (If Fine Sized - FM _____)

2.2 Aggregate (Nos. 3, 4, n) Type: _____ Size: _____ Source: _____

SSD Sp. Gr. _____ pcy _____ cu. ft.

Dry Rodded Unit Wt.: _____ pcf

3.0 Water: _____ gal. _____ pcy _____ cu. ft.

EXAMPLE FORM A (CONTINUED)

4.0 Admixtures expressed as fluid ounces/cubic yard, and estimated range

Source: _____ Name: _____ Type _____ oz

Source: _____ Name: _____ Type _____ oz

Source: _____ Name: _____ Type _____ oz

Total Admixture Liquid Vol. _____ cu. ft.

(*) Note: Show volume in 4.0 if not included in cubic feet of air or water.

5.0 Other Materials - fibers, color pigment or other additions

Sp. Gr. _____ pcy _____ cu. ft.

Total Mixture Mass and Volume: _____ pcy _____ cu. ft.

Fresh Concrete Properties

Coarse & Fine Aggregate Gradation

		Percent Passing				
Slump _____ +/- _____ in.	Sieve Size	Aggregate No.				
		1	2	3	4	Combined
Unit Weight _____ pcf	2 in.	_____	_____	_____	_____	_____
Air Content _____ +/- _____ %	1-1/2 in.	_____	_____	_____	_____	_____
	1 in.	_____	_____	_____	_____	_____
	3/4 in.	_____	_____	_____	_____	_____
	1/2 in.	_____	_____	_____	_____	_____
If Trail Batch Data -	3/8 in.	_____	_____	_____	_____	_____
Identify Batch No. _____	No. 4	_____	_____	_____	_____	_____
Batch Date _____	No. 8	_____	_____	_____	_____	_____
Concrete Temp. _____ °F	No. 16	_____	_____	_____	_____	_____
Comp. Strength-Average _____ °F	No. 30	_____	_____	_____	_____	_____

EXAMPLE FORM A (CONTINUED)

7 day avg. _____ psi	No. 50	_____	_____	_____	_____	_____
28 day avg. _____ psi	No. 100	_____	_____	_____	_____	_____
	No. 200	_____	_____	_____	_____	_____

Comments: _____

Signature: _____ Date: _____

Title: _____

Organization: _____

EXAMPLE FORM B (CONTINUED)

5.0 Other Materials

_____ Type _____ lb _____ lb _____ lb _____ lb

Total Mass: _____ lb _____ lb _____ lb _____ lb

Total Mass/cy: _____ pcy _____ pcy _____ pcy _____ pcy

Relative Cubic Yard Volume: _____ cy _____ cy _____ cy _____ cy

Water-Cementitious Material Ratio:

Fresh Concrete Properties

TRAIL BATCH NUMBER

	<u>## -1</u>	<u>## -2</u>	<u>## -3</u>	<u>## -4</u>
Slump-inches	_____	_____	_____	_____
Air-Content %	_____	_____	_____	_____
Unit Wt. pcf	_____	_____	_____	_____
Concrete Temp. °F	_____	_____	_____	_____
Compressive Strength Results (ASTM C192, C39) or Other Specified Test Requirements				
7 days	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
Average (7 day)	_____	_____	_____	_____

EXAMPLE FORM B (CONTINUED)

28 days	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
Average (28 day)	_____	_____	_____	_____
Water-Cementitious Material Ratio:	_____	_____	_____	_____

Signature: _____ Date: _____

Title: _____

Organization: _____

SUPPLEMENTAL SPECIAL PROVISION – ERSKINE AVENUE CROSSING CULVERT AND JUNCTION CHAMBER WORK

1. DESCRIPTION

A. This supplemental special provision governs the precast box culvert, cast-in-place concrete junction chambers, associated concrete encasement, bedding, backfill interfaces, bypass pumping, dewatering, utility coordination, and all appurtenant work for the Erskine Avenue Crossing Improvements. This provision supplements the above section 030000 and the Contract Drawings. In the event of conflict, the more stringent requirement shall govern. The Contractor shall provide all labor, materials, equipment, design, submittals, temporary works, and incidentals necessary to complete the work as shown and specified.

2. RELATED REQUIREMENTS

A. Work shall conform to the Contract Drawings, ODOT Construction and Material Specifications, applicable ODOT Standard Construction Drawings, and the requirements of this Section.

B. Contractor means and methods, including excavation support, cofferdams, bypass pumping, sequencing, temporary utility support, traffic control, and protection of adjacent improvements, remain the sole responsibility of the Contractor.

3. DELEGATED DESIGN AND SUBMITTALS

A. The precast box culvert system and cast-in-place junction chambers shall be designed under the responsible charge of a Professional Engineer licensed in the State of Ohio. Signed and sealed calculations and shop drawings shall be submitted for review prior to fabrication or construction.

B. Delegated design shall account for all applicable dead loads, live loads, earth loads, hydrostatic loads, surcharge loads, temporary construction loads, utility crossings, trench conditions, bearing conditions, uplift where applicable, and all load combinations required by the governing design criteria shown on the Drawings.

C. Submittals shall include, at a minimum: culvert geometry, section lengths, reinforcement, concrete strengths, joint details, lifting provisions, connection hardware, chamber wall and slab reinforcement, pipe and culvert openings, benching details, bedding requirements, design assumptions, and erection/installation procedures. Submittals shall clearly identify all deviations from the Drawings. Deviations shall not be permitted unless specifically accepted by the Engineer.

D. No materials shall be ordered and no fabrication shall begin until the Engineer has completed review of the required submittals.

4. PRECAST BOX CULVERT REQUIREMENTS

A. The precast box culvert shall conform to the size, layout, lengths, and loading shown on the Drawings. The Contractor shall furnish not less than the minimum total culvert length indicated and shall coordinate section lengths and joint locations to suit the proposed installation while maintaining the required geometry and hydraulic alignment.

B. Precast sections shall be manufactured by Mack Industries, Inc. or an approved equal. Any proposed substitute shall match the specified section dimensions, concrete strength, design loading, reinforcement, joint configuration, sealant system, bolt pocket system, hardware, lifting provisions, and installation requirements. Approval of an equal product is not approval of any dimensional, structural, or connection deviation from the Contract Documents.

C. All culvert joints shall be watertight. Joint sealant, external wrap, bolt pockets, bolts, washers, nuts, and related accessories shall be installed exactly in accordance with the reviewed submittal and manufacturer's written instructions. The completed installation shall provide a continuous, aligned, watertight culvert system free of offset, rocking, or open joints.

D. Lifting holes and openings not intended to remain open shall be plugged and finished flush after installation. Damage to precast units during shipping, handling, or installation shall be repaired only by methods accepted by the Engineer. Cracked, spalled, distorted, or otherwise damaged units that, in the opinion of the Engineer, are unsuitable for service shall be rejected and replaced at no additional cost to the Owner.

5. CAST-IN-PLACE JUNCTION CHAMBER REQUIREMENTS

A. Junction chambers shall be constructed to the dimensions and elevations shown on the Drawings and shall be designed and detailed to accommodate the proposed box culvert, existing and proposed storm connections, wall penetrations, benching, and all imposed loads.

B. Concrete shall be cast against stable, properly prepared excavation surfaces or forms, on a prepared foundation, and in a dewatered condition. Concrete shall not be placed into standing water or on unstable, disturbed, or frozen subgrade.

C. Openings for culvert and pipe connections shall be accurately formed. Connection interfaces shall be watertight and finished neat. Interior benching shall be formed to direct flow smoothly and to eliminate standing water, abrupt offsets, or debris traps.

D. All exposed honeycombing, voids, fins, offsets, leaks, and surface defects affecting serviceability, durability, or watertightness shall be repaired or the work replaced, as directed by the Engineer.

6. CONCRETE MATERIALS AND INSTALLATION

A. Concrete for cast-in-place junction chambers shall be Class A unless noted otherwise on the Drawings or accepted by the Engineer. Concrete for mud mats, fill, channeling, and pipe encasement shall be as specified on the Drawings or in Section 030000.

B. Concrete mixes, reinforcement, placement, curing, patching, and repair shall conform to Section 030000 except as modified herein. Slump, air content, and admixtures shall be suitable for heavily reinforced utility structures and watertight construction. Calcium chloride admixtures shall not be permitted.

C. The Contractor shall protect fresh concrete from washout, vibration from adjacent operations, thermal shock, and premature loading. Forms and falsework shall remain in place until the concrete has achieved adequate strength to safely support imposed loads.

7. FOUNDATION PREPARATION, BEDDING, AND BACKFILL

A. Subgrade for the culvert and chambers shall be proofed, dewatered, and prepared to receive the specified stone foundation and bedding. Soft, pumping, disturbed, or otherwise unsuitable material shall be removed to the limits directed by the Engineer and replaced with suitable material at no additional cost to the Owner unless otherwise provided by the Contract.

B. Stone bedding and structural backfill shall be placed uniformly and compacted in lifts so as not to distort, displace, or damage the culvert or chambers. Backfill shall be brought up evenly on both sides of the culvert. Heavy compaction equipment shall not be used in a manner that overloads or damages the installed structure.

8. **BYPASS PUMPING, DEWATERING, AND FLOW CONTROL**
 - A. The Contractor shall furnish, install, operate, maintain, and remove all bypass pumping, temporary dams, piping, appurtenances, standby equipment, and dewatering systems required to keep the work area dry and to continuously convey sanitary and storm flows during construction.
 - B. At least seven days prior to beginning flow interruption or excavation affecting existing systems, the Contractor shall submit a bypass pumping and dewatering plan. The plan shall describe proposed equipment, capacities, backup equipment, power supply, alarm/monitoring provisions, intake and discharge locations, sediment control, emergency response procedures, and sequencing. Review of the plan shall not relieve the Contractor of full responsibility for uninterrupted service and environmental protection.
 - C. Dewatering discharges shall be controlled to prevent erosion, sediment discharge, flooding, property damage, nuisance conditions, or contamination of receiving waters and storm systems. Sediment-laden water shall be treated before discharge. The Contractor shall immediately repair any failure of the temporary flow control system and shall be solely responsible for all resulting damages, cleanup, and corrective actions.

9. **UTILITY COORDINATION AND PROTECTION**
 - A. The Contractor shall field verify the location and elevation of all utilities before construction and shall coordinate with utility owners regarding relocation, shutdowns, protection, support, and reconnection. Utilities shown on the Drawings are based on available information and are not guaranteed. No claim for additional compensation due solely to utility location uncertainty will be considered where field verification and coordination were required by the Contract Documents.
 - B. Temporary supports, bridging, sheeting, restraints, and protective measures for existing utilities and adjacent facilities shall be designed and provided by the Contractor as part of the work. Utility services to adjacent properties shall be maintained unless otherwise specifically authorized by the Owner and utility owner.

10. **TOLERANCES AND ACCEPTANCE**
 - A. Culvert and chamber work shall be constructed to the lines, grades, dimensions, and elevations shown on the Drawings. The completed culvert invert and chamber flow lines shall provide smooth, continuous hydraulic transitions without ponding or abrupt offsets.
 - B. The Engineer may require removal and replacement of work that is out of tolerance, not watertight, improperly aligned, inadequately supported, damaged, or otherwise unacceptable. Corrective measures shall be at the Contractor's sole expense.
 - C. Prior to acceptance, the Contractor shall clean all chambers and culvert interiors and demonstrate that the completed system is free of debris, obstructions, leakage visible to the Engineer, and other defects.

11. **MEASUREMENT AND PAYMENT**
 - A. No separate payment will be made under this Section for delegated design, submittals, coordination, bypass pumping, dewatering, temporary works, utility support, testing, patching, repairs, protection, or other incidentals required to complete the culvert and junction chamber work. Such costs shall be included in the applicable Contract bid items unless a separate pay item is specifically provided in the Proposal.
 - B. Where payment items for box culvert, junction chambers, concrete encasement, maintaining traffic, or related work are included in the Contract, full compensation shall include all materials, equipment, labor, excavation support, bedding, backfill interfaces,

joint materials, hardware, bypass pumping, dewatering, utility coordination, and restoration necessary for a complete and accepted installation.

END OF SECTION 030000

SECTION 310000 - EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. The Work covered by this Section shall include all excavation, trenching and related work for the construction of the designated structures and pipelines, backfill and other incidental work.
- B. The Work covered by this Section consists of:
 - 1. making all necessary excavations for the construction of all Work;
 - 2. preparing subgrade for foundations, slabs, walks, and pavements;
 - 3. doing all pumping, fluming, and dewatering necessary to keep the trenches and other excavation free from water;
 - 4. providing for uninterrupted flow of existing drains and sewers, and the disposal of water from any sources during the progress of the Work;
 - 5. supporting and protecting all trench walls, structures, pipes, conduits, culverts, posts, poles, wires, fences, buildings and other public and private property adjacent to the Work;
 - 6. removing and replacing existing sewers, culverts, pipelines and bulkheads where necessary;
 - 7. removing after completion of the Work all sheeting and shoring or other soil support materials not necessary to support the sides of trenches;
 - 8. removing and disposing all surplus excavated material;
 - 9. doing all backfilling and grading, of compacting backfill to limits specified or ordered by the Engineer;
 - 10. restoring all property damaged as a result of the Work involved in this Contract.
- C. The Work includes transporting surplus excavated materials not needed for backfill at the location where the excavation is made, to other parts of the Work where filling is required, and disposal of all types of surplus material off the site.
- D. The Work includes low strength mortar backfill material intended for use in backfilling as shown on the Drawings.

1.2 RELATED DOCUMENTS AND SECTIONS

- A. Section 013319 – Field Testing Requirements
- B. Section 015713 - Temporary Erosion Control
- C. Section 030000 - Concrete Work
- D. Specific Project Requirements

1.3 DEFINITIONS

- A. Backfill: Soil or granular materials used to fill an excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, not including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Bedding: Layer placed over the excavated subgrade in a trench before laying pipe.
- C. Borrow: Satisfactory soil imported for use as fill or backfill.
- D. Excavation: Removal and disposal of material encountered above subgrade or foundation elevations.
 - 1. Additional Excavation: Excavation below subgrade or foundation elevations as directed by Engineer.
 - 2. Trench: Narrow linear excavation
 - 3. Unauthorized Excavation: Excavation below subgrade or foundation elevations or beyond indicated dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.
 - 4. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface or subsurface conditions encountered, including rock, soil materials and obstructions.
- E. Embankment: A structure consisting of soil, granular material, shale, rock, or other approved material, constructed in layers to a predetermined elevation and cross-section.
- F. Granular materials: Natural aggregate, such as broken or crushed rock, gravel, or sand that can be readily incorporated into an 8-inch layer, and in which at least 65% by weight of the grains or particles are retained in a No. 200 sieve.
- G. Laboratory Dry Weight: The maximum laboratory dry weight shall be the weight provided by the laboratory when the sample is tested in accordance with ASTM D-698 Method A, C, or D.
- H. Optimum Moisture: The water content at which the maximum density is produced in a soil by a given compaction effort (ASTM D-698).
- I. Pavement Prism: Also referred to as the zone of influence. The area below a line drawn 45 degrees to the horizontal from the surface at the edge of pavement, sidewalk or curb.
- J. Pipe Embedment: The material placed in a trench surrounding a pipe or conduit consisting of the foundation, bedding, haunching, and initial backfill.
- K. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material one (1) cu. yd. or more in volume that when tested by

an independent geotechnical testing agency, according to ASTM D 1586, exceeds a standard penetration resistance of 100 blows/2 inches.

- L. Shale: Laminated material, formed by the consolidation in nature of soil, having a finely stratified structure. For the purpose of these specifications, the following bedrock types shall also be considered shale: mudstone, claystone, siltstone and hard clay.
- M. Soil: All earth materials, organic or inorganic, which have resulted from natural processes such as weathering, decay, and chemical reaction.
- N. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, pavement, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- O. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage course, or topsoil materials.
- P. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 SUBMITTALS

- A. Comply with all provisions of Section 013323, Shop Drawings and Submittals.
- B. Product Data: For the following:
 - 1. Source-locations of all materials shall be identified to the Engineer.
 - 2. Source quality laboratory test of all fill materials as required to show compliance with material specifications.
- C. Shop Drawings: Submit information for the following items:
 - 1. Sheeting and bracing prepared and stamped by a professional engineer, registered in the State of Ohio.
 - 2. Dewatering system and standby equipment
 - 3. Protection methods anticipated.
 - 4. Excavation procedures.

1.5 REFERENCES

- A. AASHTO M 43 Standard Specification for Size of Aggregate for Road and Bridge Construction
- B. ASTM C-150 Standard Specification for Portland Cement
- C. ASTM C-618 Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

- D. ASTM D-698 Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5-lb (2.49-kg) Rammer and 12-in. (305-mm) Drop
- E. ASTM D-1586 Standard Method for Penetration Test and Split-Barrel Sampling of Soils
- F. ASTM D-2487 Standard Test Method for Classification of Soils for Engineering Purposes
- G. ASTM D-2940 Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports
- H. ASTM D-4253 Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
- I. ASTM D-4254 Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
- J. State of Ohio - Department of Transportation - Construction and Material Specifications, Item 304, Aggregate Base.
- K. State of Ohio - Department of Transportation - Construction and Material Specifications, Material Detail 703.16, Suitable Materials for Embankment Construction.
- L. State of Ohio - Department of Transportation - Construction and Material Specifications, Material Detail 703.02.A.2, Fine Aggregate for Portland Cement Concrete

1.6 QUALITY ASSURANCE

- A. Qualifications
- B. Regulatory Requirements
- C. Certifications
- D. Field Samples
- E. Mock-ups
- F. Pre-Construction Conference

1.7 PROJECT CONDITIONS

- A. Environmental Requirements
- B. Existing Conditions

1. Existing ground elevations of the site are shown by figures and/or by contours on the Drawings. The contours and elevations of the present ground are believed to be reasonably correct, but do not purport to be absolutely so, and, together with any schedule of quantities, are presented only as an approximation. The Contractor shall satisfy himself, however, by actual examination on the site of the Work, as to the existing elevations and contours, and the amount of work required.
- C. Existing Utilities
1. Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.
 2. Notify Engineer not less than two days in advance of proposed utility interruptions.
 3. Do not proceed with utility interruptions without Engineer's written permission.
 4. Contact utility-locator service for area where Project is located before excavating.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to the site, store and protect under provisions of Section 016600, Product Handling and Protection.
- B. Comply with all provisions of Section 013543, Environmental Protection.

1.9 SEQUENCING AND SCHEDULING

- A. Refer to 013319 for testing laboratory service scheduling.

1.10 PROHIBITION OF EXPLOSIVES

- A. The use of explosives is not permitted.

1.11 FIELD MEASUREMENTS

- A. The Contract Drawings may indicate locations where certain utilities, structures or facilities might possibly interfere with the installation of new improvements. The Contractor shall dig such exploratory test pits as may be necessary to determine the exact location and elevation of the indicated subsurface structure and shall make acceptable provision for their protection, support and maintenance in operation. The Engineer shall be provided advance notification when and where excavation for test pits will take place. The Contractor shall provide the Engineer a record of field locations of all listed utilities, structures or facilities a minimum of five (5) days prior to initiating construction of the project. Locations and elevations are to be provided by a Surveyor registered in the State of Ohio.

PART 2 - PRODUCTS

2.1 GRANULAR PIPE EMBEDMENT

- A. Crushed gravel or crushed limestone meeting AASHTO M 43 gradation shall be used for bedding, haunching, and initial backfill as shown on the Drawings.

2.2 ONSITE BACKFILL

- A. Excavated soil material, capable of meeting specified compaction, and approved by the Engineer for use as backfill in designated locations.
- B. Based upon subsurface investigation, the Owner does not guarantee the onsite soils in its present state consists of the proper moisture content to achieve the specified compaction without drying or adding water.
- C. Unsuitable Backfill Material
1. Onsite materials that are unsuitable for backfill, unless otherwise specifically shown in the Drawings, include rock or other materials greater than six (6) inches in their largest dimension, pavement, rubbish, debris, wood, metal, plastic, frozen earth, and the following soils classified per ASTM D-2487:

<u>Symbol</u>	<u>Description</u>
OL	Organic silts and organic silty clays of low plasticity
MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
CH	Inorganic clays of high plasticity, fat clays
OH	Organic clays of medium to high plasticity
PT	Peat, muck, and other highly organic soils

2.3 SPECIAL BACKFILL MATERIAL (ODOT Item 304)

- A. Special backfill material shall meet the gradation requirements of ODOT Item 304 and shall consist of crushed gravel or crushed limestone in combination with natural sand or stone. The aggregate shall meet the following gradation requirements:

<u>Sieve</u>	<u>Total Percent Passing</u>
2 inch	100
1 inch	70-100
¾ inch	50-90
No. 4	30-60
No. 30	9-33
No. 200	0-15

2.4 LOW STRENGTH MORTAR BACKFILL

- A. Low Strength Mortar shall comply with ODOT Item 613.

- B. Submit test data that demonstrates that the proposed mix has a strength of 50 to 100 PSI at 28 days.
- C. Each load shall be tested with 3 cylinders for strength test broken at 3, 7, and 28 days until the Engineer is assured that the mix will be between 50 to 100 PSI at 28 days. Thereafter, one set of strength tests shall be taken every 50 CY.

It is intended that the sand be fine enough to stay in suspension in the mixture to the extent required for proper flow. The Engineer reserves the right to reject the sand if a flowable mixture cannot be produced.

- D. Mortar Mix Proportioning
 - 1. The initial trial mixture shall be as follows:

Quantity of Dry Materials per Cubic Yard

Cement	100 lbs.
Fly Ash	250 lbs.
Sand (SSD)*	2700 lbs.
Water	500 lbs.
* saturated-surface dry	

- 2. These quantities of materials are expected to yield approximately 1 cubic yard of mortar of the proper consistency. Adjustments of the proportions may be made providing the total absolute volume of the materials is maintained.

2.5 ACCESSORIES

- A. Warning Tape
 - 1. Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:
 - a. Red: Electric.
 - b. Yellow: Gas, oil, steam, and dangerous materials.
 - c. Orange: Telephone and other communications.
 - d. Blue: Water systems.
 - e. Green: Sewer systems.
- B. Detectable Warning Tape
 - 1. Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
 - a. Red: Electric.
 - b. Yellow: Gas, oil, steam, and dangerous materials.
 - c. Orange: Telephone and other communications.

- d. Blue: Water systems.
- e. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Excavation; Temporary Sheeting, Shoring, and Bracing
 1. All excavation shall be in accordance with the Occupation Safety and Health Administration (OSHA) regulations.
 2. The Contractor shall furnish and install adequate sheeting, shoring, and bracing to maintain safe working conditions, and to protect newly built work and all adjacent neighboring structures from damage by settlement.
 3. Bracing shall be arranged so as not to place a strain on portions of completed work until construction has proceeded enough to provide ample strength. Sheeting and bracing may be withdrawn and removed at the time of backfilling, but the Contractor shall be responsible for all damage to newly built work and adjacent and neighboring structures.
 4. All sheeting shall be removed unless specifically authorized in writing by the Engineer to be left in place.

3.2 REPLACING, MOVING AND REPAIRING OF EXISTING UTILITIES

- A. The Contractor shall:
 1. replace, move, repair and maintain all utilities and all other structures encountered in the work
 2. coordinate and communicate with applicable utility companies
 3. repair all damage done to any of the said structures and appurtenances through his acts or neglect and shall keep them in repair during the life of this contract. The Contractor shall in all cases leave them in as good condition as they were previous to the commencement of the work and to the satisfaction of the Engineer.

3.3 DEWATERING

- A. Drainage and Removal of Water
 1. The Contractor shall dispose of water from the Work in a suitable manner without damage to adjacent property or structures.
 2. The Contractor shall, when ordered by the Engineer, construct tight bulkheads across trench and provide pumps suitable for the removal of any water which may be encountered or which may accumulate in the trenches. Unless otherwise provided for in the Contract Documents, drainage water will not be permitted to flow through the conduit.
 3. The trench shall be kept free from sewage and storm, surface, and subsurface water to at least 2 feet below the bottom of the excavation.
 4. Where open water courses, ditches, or drain pipes are encountered during the progress of the Work, the Contractor shall provide protection and securing of

the continuous flow in such courses or drains and shall repair any damage that may be done to them.

3.4 EXCAVATION CLASSIFICATION

- A. All excavated materials are unclassified as defined in Article 1.3.

3.5 GENERAL EXCAVATION

- A. All necessary excavation for buildings, structures, pavements, and site improvements shall be performed to accommodate the completion of all related Contract Work.
- B. The Drawings show the horizontal and the lower limits of structures. The methods and equipment used by the Contractor when approaching the bottom limits of excavation shall be selected to provide a smooth surface and to prevent disturbing the soil below the bottom limits of excavation. All soil loosened during excavation shall be removed from the bottom of the excavation.
- C. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
- D. Excavation which is carried below the bottom limits of structures shall be classified as Unauthorized Excavation, unless said excavation below bottom limits of structures has been authorized by the Engineer prior to each occurrence.

3.6 TRENCH EXCAVATION

- A. Excavation for trenches in which pipelines, sewers, and conduits are to be installed shall provide adequate space for workmen to space and joint pipe properly, but in every case the trench shall be kept to a minimum width. The width of trench shall not exceed the limits shown on the Drawings.
- B. Excavation shall be to the depth necessary for placing of granular bedding material under the pipe as shown on the Drawings. If over-excavation occurs, the trench bottom shall be filled to grade with compacted granular bedding material.
- C. Trenching operations shall not be performed beyond the distance that will be backfilled and compacted the same day.
- D. In general, backfilling shall begin as soon as the conduit is in approved condition to receive it and shall be carried to completion as rapidly as possible. New trenching shall not be started when earlier trenches need backfilling or the surfaces of streets or other areas need to be restored to a safe and proper condition.

3.7 EXCAVATION OF UNSUITABLE MATERIALS

- A. Unsuitable materials existing below the Contract bottom limits for excavation shall be removed as directed by the Engineer. Such excavation shall not exceed the vertical and lateral limits as prescribed by the Engineer.
- B. In utility trenches, the voids left by removal of unsuitable excavated material shall be filled with AASHTO M 43 No. 1 and No. 2 aggregate conforming to the material requirements of Article 2.1 of this Section.
- C. In excavations other than utility trenches, the voids left by removal of unsuitable excavated material shall be filled with material consisting or either: (1) Special Backfill Material; (2) Class B concrete; or (3) Low Strength Mortar Backfill, whichever is ordered by the Engineer.
- D. Removal of unsuitable excavated material and its replacement as directed will be paid on basis of Contract Conditions relative to Changes in Work unless specific unit prices have been established for excavation of unsuitable material.

3.8 DISPOSAL OF UNSUITABLE AND SURPLUS MATERIAL

- A. It shall be the responsibility of the Contractor to dispose of all surplus material that cannot be used in backfill or embankments at his expense outside the limits of the project. Unsuitable excavated material, including rock or large boulders, shall be disposed of outside the limits of the project.
- B. Surplus material may be wasted adjacent to or incorporated in the regular construction only when ordered in writing by the Engineer.

3.9 BACKFILL

- A. Pipelines, Sewers and Conduits
 1. All pipe shall have bedding extending the width of the trench with depth in conformance with the Drawings. The bedding material shall be thoroughly compacted by tamping until no further densification is possible.
 2. Pipe cover material shall be used for filling above the pipe bedding along the sides of the pipe and to a height of twelve (12) inches over the top of the pipe. The pipe cover material shall be brought up evenly on both sides of the pipe to eliminate the possibility of lateral displacement of the pipe and shall be thoroughly compacted by tamping until no further densification is possible. Care shall be taken to spade the aggregate under the pipe haunch below the spring line.
 3. All trenches and excavations shall be backfilled immediately after pipe is laid therein, unless otherwise directed by the Engineer.
 4. After the pipe cover has been placed and compacted around the pipe as specified above, the remainder of the trench may be backfilled by machine. The backfill material shall be deposited in eight (8) inch horizontal layers, and each layer shall be thoroughly compacted to the specified density by approved methods before a succeeding layer is placed. In no case will

backfilling material from a bucket be allowed to fall directly on a pipe and in all cases the bucket must be lowered so that the shock of the falling earth will not cause damage.

B. Structures

1. Backfilling shall not commence before concrete has attained specified strength. Do not use equipment for backfilling and compaction operations against structures that will overload the structure.
2. Backfilling around and over structures shall be carefully placed and tamped with tools of suitable weight to a point one (1) foot above the top of same. Additional backfill may be required to protect the structure from damage from heavy equipment. Backfill shall be placed in uniform layers not exceeding eight (8) inches in depth. Each layer shall be placed, then carefully and uniformly compacted to the specified density so as to eliminate the possibility of displacement of the structure.
3. After the backfill has been placed and compacted around the structure to the height specified above, the remainder may be backfilled by machine. The backfill material shall be deposited in eight (8) inch horizontal layers, and each layer shall be thoroughly compacted to the specified density by approved methods before a succeeding layer is placed. In no case will backfilling material from a bucket be allowed to fall directly on a structure, and in all cases the bucket must be lowered so that the shock of the falling earth will not cause damage.

C. Where any new, proposed, or future pavement, driveway, parking lot, curb, curb and gutter, or walk is to be placed over a backfilled area, Special Backfill material shall be used for any portion of the trench falling within the pavement prism.

D. Where it is necessary to undercut or replace existing utility conduits and/or service lines, the excavation beneath such lines shall be backfilled the entire length with approved Granular Pipe Embedment Material compacted in place in eight (8) inch layers to the required density. The approved Granular Pipe Embedment Material shall extend outward from the spring line of the conduit a distance of two (2) feet on either side and thence downward at its natural slope.

3.10 LOW STRENGTH MORTAR BACKFILL

- A. Low strength mortar backfill shall be discharged from the mixer as recommended by the supplier and approved by the Engineer.
- B. Low strength mortar backfill may be placed in the trench in as few lifts as may be practical.
- C. Secure conduit or pipelines before placing low strength mortar backfill to prevent conduits and pipelines from floating during backfilling.
- D. For low strength mortar backfill placed against existing structures of unknown strength, backfill material shall be brought up uniformly in maximum 12 inch lifts

and allowed to cure for a minimum of 24 hours or until it can carry a person's weight without leaving imprints before the next lift is placed.

- E. Low strength mortar backfill shall be brought up to subgrade elevation or the pavement prism, whichever may be applicable.

3.12 SUBGRADE

- A. All soil subgrade shall be prepared in accordance with this subsection.
- B. Drainage
 - 1. The surface of the subgrade shall be maintained in a smooth condition to prevent ponding of water after rains to insure the thorough drainage of the subgrade surface at all times.
- C. Unsuitable Subgrade
 - 1. Where unsuitable subgrade or subgrade not meeting the required bearing capacity is encountered in cuts, due to no fault or neglect of the Contractor, in which satisfactory stability cannot be obtained by moisture control and compaction, the unstable material shall be excavated to the depth required by the Engineer.
 - 2. Suitable material required for the embankment to replace the undercut will be paid on basis of Contract Conditions relative to changes in Work.
 - 3. Where soft subgrade in cuts is due to the failure of the Contractor to maintain adequate surface drainage as required in this article, or is due to any other fault or neglect of the Contractor, the unstable condition shall be corrected as outlined above at no expense to the Owner.
- D. Full Width New Pavement Construction
 - 1. After the surface of the subgrade has been shaped to approximate cross section grade, and before any pavement, base or subbase material is placed thereon, the subgrade shall be compacted. When the rolling is completed, all surface irregularities shall be corrected and the surface of the subgrade shall be shaped as necessary to conform to the grade and cross section shown on the Drawings within the tolerance set forth in this Section and shall be so maintained until the overlying course is in place.

3.13 TOLERANCES

- A. The Contractor shall check the work under this item with templates, slope boards or other devices satisfactory to the Engineer. The completed work shall conform to the Drawings within the following tolerances:
 - 1. For subgrade, the surface shall at no place vary more than ½ inch from a ten-foot straight edge applied to the surface parallel to the centerline of the pavement, nor more than ½ inch from subgrade elevation established by construction layout stakes.

3.14 CONSTRUCTION WITH MOISTURE AND DENSITY CONTROL

- A. All backfill and embankments, except rock embankments, shall be constructed using moisture and density control. All subgrade, except rock and shale in cut sections, shall be constructed using moisture and density control.
- B. Backfill, embankment and subgrade material which does not contain sufficient moisture to be compacted in accordance with the requirements of Article 3.17 of this Section shall be sprinkled with water as directed by the Engineer to bring the moisture content to within the range of optimum plus or minus three (3) percent. Water shall be thoroughly incorporated into the material by means of discs or other approved equipment.
- C. Backfill, embankment and subgrade material containing excess moisture shall be dried, prior to installation, to a moisture content not greater than three (3) percentage points above optimum, except that for material within the moisture content range specified herein that displays pronounced elasticity or deformation under the action of loaded construction equipment, the moisture content shall be reduced to optimum or below if necessary to secure stability. For subgrade material, these requirements for maximum moisture shall apply at the time of compaction of the subgrade and also at the time of placing pavement or subbase. Drying of wet soil shall be expedited by the use of plows, discs, or by other approved methods when so ordered by the Engineer.

3.17 COMPACTION REQUIREMENTS

- A. The bottom of excavations upon which concrete foundations or structures are to be placed shall be compacted so as to obtain 100% of maximum dry density per ASTM D-698 in the top twelve (12) inches.
- B. The top twelve (12) inches of stripped original subgrade and final subgrade shall be compacted to not less than 100% of maximum dry density per ASTM D-698.
 - 1. Subgrade under new, proposed, or future pavement shall be compacted 18 inches beyond the edge of pavement, paved shoulders or paved medians.
- C. Compaction of subgrade for sidewalks (regardless of paving material) shall be 100% of maximum dry density per ASTM D-698 in the top six (6) inches.
- D. Compaction of non-paved areas shall be 90% of maximum dry density per ASTM D-698.
- E. Aggregate pipe embedment and aggregate backfill around structures shall be compacted to not less than 100% of maximum dry density per ASTM D-4253 and ASTM D-4254.
- F. Final backfill shall be compacted to not less than 100% of maximum dry density per ASTM D-698.

- G. Fill placed within the interior of structures shall be compacted to not less than 100% of maximum dry density per ASTM D-698.
- H. Embankment shall be placed and compacted in layers until the density is not less than the percentage of maximum dry density indicated in the following table determined by ASTM D-698.

EMBANKMENT SOIL COMPACTION REQUIREMENTS

Maximum Laboratory Dry Weight <u>Pounds/Cubic Foot</u>	Minimum Compaction Requirements Percent Laboratory <u>Maximum</u>
90-104.9	102
105-119.9	100
120 and more	98

- I. Test Sections
 - 1. If it is determined by the Engineer that the composition of the material is such that it cannot be tested for density using a nuclear densometer or other methods; or where, in the opinion of the Engineer, in-place compaction testing is not feasible; and if approved by the Engineer, the Contractor may construct a test section to demonstrate acceptable compactive effort in lieu of in-place compaction testing. Test sections shall be constructed at no additional cost to the Owner.
 - 2. The test section shall be completed by repeatedly compacting the material until no further density is achieved. This value shall be the Minimum Test Section Density (MTSD). The compaction equipment used to complete the test section shall be of suitable size to compact the material and shall be the same equipment used to compact the in-place material.
 - 3. The test section shall be constructed with moisture density control as specified in this Section.
 - 4. The material shall be compacted to at least 98% of the MTSD.
 - 5. Each lift of in-place fill or backfill shall be densified using a compactive effort equal to or greater than the effort applied to achieve the MTSD; i.e., if six passes were required to achieve MTSD, then each lift of material shall be compacted using six or more passes.
 - 6. Construct a new test section when, in the opinion of the Engineer, the fill or backfill material has changed character or when the supporting material has changed character.

3.18 GRADING

- A. Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading

1. Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - a. Lawn or unpaved areas shall be graded to plus or minus (*1 inch*)
 - b. Walks shall be graded to plus or minus (*1 inch*)

END OF SECTION 310000

SECTION 312323.13 – COMPACTED BACKFILL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The Contractor shall furnish, place and compact all the materials needed from select excavated materials or furnish additional suitable material if the excavated material is deemed unsuitable or the moisture content is not or can not be made to be within acceptable tolerances of optimum moisture to achieve the specified compaction.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Suitable excavated material as specified in ODOT Item 203.

PART 3 - EXECUTION

3.1 PLACING

- A. Compacted backfill shall be properly placed in layers sufficient to meet the compaction requirement of 95% of maximum laboratory dry density per ASTM D 698 throughout the entire layer and thoroughly compacted with mechanical compaction equipment with moisture adjustment as needed. Should after settlement occur, the Contractor must add and compact additional material, and he must maintain the backfill at the required finished grade or sub-grade until the project is satisfactorily completed and during the correction period.
- B. Approved mechanical compaction equipment shall be used for tamping backfill. Flooding, jetting or puddling of backfill will not be permitted.

END OF SECTION 312323.13

SECTION 312323.14 – COMPACTED GRANULAR BACKFILL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The Contractor shall furnish, place and compact all the materials needed.

PART 2 - PRODUCTS

2.1 MATERIAL

- A. Aggregate shall be as called for on the plans and detail sheets. Crushed gravel or slag products are unacceptable.
- B. Contractor shall submit current test reports for the lot(s) of the material to be supplied.

PART 3 - EXECUTION

3.1 PLACING AND COMPACTING

- A. Compacted granular backfill shall be properly placed in layers sufficient to meet the compaction requirement of 100% of maximum laboratory dry density per ASTM D 698 throughout the entire layer and thoroughly compacted with mechanical compaction equipment with moisture adjustment as needed. Should after settlement occur, the Contractor must add and compact additional material, and he must maintain the backfill at the required finished grade or sub-grade until the project is satisfactorily completed and during the correction period.
- B. Approved mechanical compaction equipment shall be used for tamping backfill. Flooding, jetting or puddling of backfill will not be permitted.

END OF SECTION 312323.14

SECTION 321000- PAVEMENT REPLACEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The Contractor shall furnish all of the equipment, labor and materials necessary to install, replace, and/or restore existing pavement structures together with their respective appurtenances as shown on the plans and as specified herein. This work shall include all of the subgrade preparation, subbase, base, intermediate pavement course(s), and finish pavement courses together with curbing, guttering, tack and/or prime coating, sealing and other pertinent work as necessary to meet the conditions of this contract.

1.3 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 REPAIR OR REPLACEMENT WORK

- A. For the repair and/or replacement of all existing pavement structures and their respective appurtenances that are removed and destroyed or otherwise damaged by the Contractor in the course of his performance of the work required under this contract, the Contractor shall furnish all equipment, labor, and materials as necessary to properly restore to a condition equal to that at his entry, and to the satisfaction of the Engineer, the Ohio Department of Transportation, the County Engineer, City Engineer, all cinder, slag, gravel, water-bound macadam, bituminous macadam, asphalt and brick or concrete driveways, curbs, sidewalks and roadways in strict accordance with the drawings and as specified herein.
- B. In general, this item will include concrete, steel reinforcement, brick, stone, slag, cinders, gravel, asphalt and other bituminous materials and curbs, gutters, driveway culverts, road and curb drains and the demolition, excavation and removal of existing driveways, sidewalks and roadways.

1.5 REFERENCE TO OTHER PARTS

- A. Other sections of these specifications shall apply, as and where applicable to this section and such sections will be the same as though they were included in this section.
- B. For all old work where pavement is being repaired and/or replaced as a result of damages occurring thereto during the course of the work of this contract, all clearing and grubbing, removal and storage of topsoil, excavation and/or placing of compacted fill and granular backfill, shall be done as required under other parts of these specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Generally, for all repair and replacement work, all new materials shall match the existing and adjoining work in both composition and quality unless otherwise ordered, specified herein, and/or shown on the drawings. In any stone driveway or roadway, the material used for stone fill shall conform to the existing material.

PART 3 - EXECUTION

3.1 CONSTRUCTION

- A. All pavement work shall be done in strict accordance with the specifications of the governmental body concerned and the latest ODOT specifications as applicable or at the direction of the Engineer.
- B. All pavements disturbed by the Contractor's operations shall be relaid to the thickness of the adjoining pavement and, in all cases, the restoring of pavements, shall apply both to foundation courses and to the wearing surface.
- C. Should cracks or settlements appear in adjoining pavements, the paving shall be removed to the extent necessary to secure firm and undisturbed bearing and shall be replaced in a satisfactory manner.
- D. No permanent pavement shall be installed, repaired, and/or restored unless, or until, in the opinion of the Engineer, the condition of the backfill is such as to properly support the pavement.
- E. Where new or replacement concrete pavement or base is placed adjacent to existing concrete pavement or base, contraction joints shall be provided in the new or replacement pavement so as to form a continuous joint with that in the existing pavement.

3.2 ROADWAY SUBGRADE

- A. The entire area to be occupied by the roadways and parking areas shall be cleared, topsoil removed and stored, and the excavation or compacted fill made as required and brought to the proper cross-sections. Pipe trenches and other excavations shall be backfilled as required, and thoroughly compacted within the limits of the roadways or parking areas.
- B. After the surface of the subgrade has been properly shaped and before any stone or slag is placed, the entire subgrade shall be thoroughly rolled and compacted to a depth of 12 inches under this section. Rolling shall be done with an approved type of self-propelled roller, weighing not less than ten (10) tons. All hollows and depressions which develop during the rolling shall be filled with acceptable materials, and the subgrade rerolled. The process of filling and rolling shall be repeated until no depressions develop, and the entire subgrade has been brought to a uniform condition of stability.

- C. All places which, in the opinion of the Engineer cannot be properly rolled, shall be tamped with handheld mechanically or pneumatically powered tampers.
- D. In making the compacted fill and in doing the final subgrade rolling, the Contractor shall see that the material to be compacted and/or rolled has the proper moisture content to secure maximum compaction. When, in the opinion of the Engineer, the material is too wet, the compacting shall be delayed until the material has dried sufficiently. When, in the opinion of the Engineer, the material is too dry, the material shall be sprinkled with water in an amount to secure the proper moisture content.

END OF SECTION 321000

SECTION 330130.01- SEWER COLLECTION SYSTEM REHABILITATION DEFINITIONS

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specifications, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The work covered by this project shall include the furnishing of all labor, equipment, materials, and supervision; and performing all work necessary to investigate, rehabilitate, and/or replace the designated sewer lines, manholes, etc., all in accordance with the specifications. The work shall consist of, but not necessarily be limited to, performing the following work tasks where specified:

1. Sewer Line Cleaning
2. Sewer Flow Control
3. Television Inspection
4. Sewer Pipe Joint Testing
5. Sewer Pipe Joint Sealing
6. Sewer Manhole Rehabilitation
7. Sewer Manhole Replacement
8. Sewer Manhole Separation
9. Sliplining of Sewers
10. Cured-in-Place Pipe Installation
11. Fold-and-Formed Pipe Installation
12. Sewer Point Repairs
13. Service Lateral Sealing and Televising

- B. The area of work and the type of repair/rehabilitation to be performed shall be at those locations shown on the tables or drawings in the Specific Project Requirements section of these specifications.

1.3 DEFINITIONS

- A. Wherever used in these specifications, the following words and terms shall have the meanings indicated:
 1. AREAWAY: A paved surface, serving as an entry area to a basement or subsurface portion of a building, which is provided with some form of drainage device that may be connected to a sewer line.
 2. AVAILABLE WATER: Water necessary for the performance of work, which may be taken only from fire hydrant(s) approved by the Owner, given conditions of traffic and terrain which are compatible with the use of the hydrant for performance of work.

3. **BUILDING SEWER:** The conduit which connects building wastewater sources to the public or street sewer (referred to also as "house sewer," "building connection," "lateral," or "service connection"), including lines serving homes, public buildings, commercial establishments, and industry structures. In this specification, the building sewer is referred to in two sections:
 - a. The section between the building and the property line, right-of-way line, or to a point specified and supervised by the Owner's designated representative.
 - b. The remaining section to the collector sewer, including the connection thereto.
4. **BYPASS:** An arrangement of pipes, conduits, gates, and valves whereby the flow may be passed around a hydraulic structure or appurtenance. Also, a temporary setup to route flow around a specified part of a sewer system.
5. **BYPASS PUMPING:** The transportation of sewage flows around a specific sewer pipe line section or sections via any conduit for the purpose of controlling sewage flows in the specified section or sections without flowing or spilling onto public or private property.
6. **CELLAR DRAIN:** A pipe or series of pipes which collect wastewater which leak, seep, or flow into subgrade parts of structures and discharge them into a building sewer, or by other means dispose of such wastewater into sanitary, combined or storm sewers.
 - a. Referred to also as a "basement drain."
7. **CHANGE ORDER:** A written order to the Contractor authorizing an addition, deletion, or revision in the work within the general scope of work of the agreement, or authorizing an adjustment in the agreement price or agreement time.
8. **COLLECTOR SEWER:** A sewer located in the public way which collects the wastewater discharged through building sewers and conducts such flows into larger interceptor sewers and pumping and treatment works.
 - a. Referred to also as "street sewer."
9. **COMBINED SEWER:** A sewer intended to serve as both a sanitary sewer and a storm sewer, or as both an industrial sewer and a storm sewer.
10. **COMPRESSION GASKET:** A device which can be made of several materials in a variety of cross sections and which serves to secure a tight seal between two pipe sections (e.g., "O"-rings).
11. **CORBEL OR CONE:** That portion of a manhole structure which slopes upward and inward from the barrel of the manhole to the manhole cover frame.
12. **CREW:** The number of persons required for the performance of work at a site as determined by the Contractor in response to task difficulty and safety considerations at the time or location of the work
13. **DEBRIS:** Soil, rocks, sand, grease, roots, etc., in a sewer line excluding items mechanically attached to the line such as protruding service connections, protruding pipe, joint materials, and the like.

14. EASEMENT: A liberty, privilege, or advantage without profit which the owner of one parcel of land may have in the land of another. In this agreement, all land, other than public streets, in which the Owner has sewer system lines or installations and right of access to such lines or installations.
15. EASEMENT ACCESS: Areas within an easement to which access is required for performance of work.
16. ENGINEER: The engineer (a person, joint venture, firm, or corporation) who works for or under a contract or subagreement with the Owner and is designated by the Owner as the Engineer of Record under the prime contract.
17. EXFILTRATION: The leakage or discharge of flows being carried by sewers out into the ground through leaks in pipes, joints, manholes, or other sewer system structures; the reverse of "infiltration".
18. EXISTING LINEAR FEET: The total length of existing sewer pipe in place within designated sewer systems as measured from center of manhole to center of manhole from maps or in the field.
19. FLOW CONTROL: A method whereby normal sewer flows or a portion of normal sewer flows are blocked, retarded, or diverted (bypassed) within certain areas of the sewer collection system.
20. FOUNDATION DRAIN: A pipe or series of pipes which collect groundwater from the foundation or footer of structures and discharge it into sanitary, storm, or combined sewers, or to other points of disposal for the purpose of draining unwanted waters away from such structures.
21. GROUTING: The joining together of loose particles of soil in such a manner that the soil so grouped becomes a solid mass which is impervious to water (see also SEWER PIPE JOINT SEALING).
22. HYDRAULIC CLEANING: Techniques and methods used to clean sewer lines with water, e.g.; water pumped in the form of a high-velocity spray and water flowing by gravity or head pressure. Devices include high-velocity jet cleaners, collapsible dams, etc.
23. INFILTRATION: The water entering a sewer system, including building sewers, from the ground, through such means as, but not limited to, defective pipes, pipe joints, connections, or manhole walls. Infiltration does not include, and is distinguished from, inflow.
24. INFILTRATION/INFLOW (I/I): A combination of infiltration and inflow wastewater volumes in sewer lines, with no way to distinguish either of the basic sources, and with the same effect of usurping the capacities of sewer systems and other sewer system facilities.
25. INFLOW: The water discharged into a sewer system, including service connections, from such sources as, but not limited to, roof leaders; cellar, yard, and area drains; foundation drains; cooling water discharges; drains from springs and swampy areas; manhole covers; cross connections from storm sewers, combined sewers, catch basins; storm waters; surface runoff; street wash water; or drainage. Inflow does not include, and is distinguished from, infiltration.
26. INSPECTOR: The Owner's on-site representative responsible for observation and recording of quantities of work performed as set forth in these specifications.
27. INTERCEPTOR SEWER: A sewer which receives the flow from collector sewers and conveys the wastewater to treatment facilities.

28. INTERNAL PIPE INSPECTION: The television inspection of a preselected sewer line section. A television camera is moved through the line at a slow, uniform rate and a continuous picture is transmitted to an aboveground monitor.
29. INVERT: The floor, bottom or lowest point of a conduit.
30. INVERT LEVEL (ELEVATION): The level (elevation) of the lowest portion of a liquid - carrying conduit, such as a sewer, which determines in part the hydraulic gradient available for moving the contained liquid
31. JOINTS: The means of connecting sectional lengths of sewer pipe into a continuous sewer line using various types of jointing materials. The number of joints depends on the lengths of the pipe sections used in the specific sewer construction work.
32. LINEAR FOOT: Being one foot as measured along the centerline of a sewer line.
33. LONG-TERM MODULUS OF ELASTICITY: The modulus of elasticity of the material after 50 years of service. This value may be extrapolated from a 10,000 hour test of the material.
34. MAJOR BLOCKAGE: A structural defect, collapse, or blockage which prohibits manhole-to-manhole cleaning with commercially available hydraulic or mechanical cleaning equipment.
35. MANHOLE SECTION: The length of sewer pipe connecting two manholes.
36. MECHANICAL CLEANING: Techniques and methods used to clean sewer lines of debris mechanically with devices such as power rodding machines, winch-pulled brushes, bucket machines, etc.
37. OVERFLOW:
 - a. The excess water that overflows the ordinary limits such as the stream banks, the spillway crest, or the ordinary level of a container.
 - b. To cover or inundate with water or other fluid.
38. PHYSICAL PIPE INSPECTION: The crawling or walking through manually accessible pipe lines. The logs for this inspection technique record the information of the kind detailed under Internal Pipe Inspection. This inspection technique is only undertaken when field conditions offer minimal hazard or jeopardy to personnel.
39. PIPE JOINT SEALING: A method of correcting leaking or defective pipe joints which permit infiltration of extraneous water into the sewers by means of applying chemical materials into and/or through the joint area from within the pipe.
40. REGULATOR: A device or apparatus for controlling the quantity of admixtures of sewage and storm water admitted from a combined sewer collector line into an interceptor sewer, or pumping or treatment facilities, thereby determining the amount and quality of the flows discharged through an overflow device to receiving waters or other points of disposal.
41. ROOF LEADER: A drain or pipe that conducts storm water from the roof of a structure downward and thence into a sewer for removal from the property, or onto the ground for runoff or seepage disposal.
42. SANITARY SEWER: A sewer intended to carry only sanitary or sanitary and industrial wastewater from residences, commercial buildings, industrial parks, and institutions.
43. SERVICE CONNECTION: see Building Sewer.
44. SEWER CLEANING: The utilization of hydraulic or mechanical techniques and/or devices to dislodge, transport, and remove debris from sewer lines.

45. SEWER PIPE: A length of conduit, manufactured from various materials and in various lengths, that when joined together can be used to transport wastewater from point of origin to a treatment works. Materials include, but are not limited to: Acrylonitrile-butadiene-styrene (ABS); Asbestos-Cement (AC); Brick Pipe (BP); Concrete Pipe (CP); Cast Iron Pipe (CIP); Ductile Iron Pipe (DIP); Polyethylene (PE); Polyvinylchloride (PVC); Reinforced Concrete Pipe (RCP); Reinforced Plastic Mortar (RPM); Steel Pipe (SP); Vitriified Clay Pipe (VCP).
46. SITE: Any location where work has been or will be done.
47. SITE ACCESS: An adequately clear area of a size sufficient to accommodate personnel and equipment required at the location where work is to be performed, including roadway or surface sufficiently unobstructed to permit conveyance of vehicles from the nearest paved roadway to the work location.
48. SPRING LINE: The horizontal midpoint of a sewer pipe.
49. STORM SEWER: A sewer intended to carry only storm waters, surface runoffs, street wash water, and drainage.
50. STREET ACCESS: Areas normally used for public vehicular traffic (including roads, streets, or areas within existing rights-of-way or easements) to which safe access is required for performance of work.
51. SUBCONTRACTOR: An individual, firm, or corporation having a direct contract with the Contractor for performance of part of the work.
52. SURCHARGE: When the sewer flow exceeds the hydraulic carrying capacity of the sewer line.
53. SURCHARGE CONDITION: When the sewer flow depth equals or exceeds the diameter of the discharging sewer line or lines.
54. SWALE (DIP, SAG): A significant deviation in pipe grade such as to cause entrapment of solids, semisolids, and liquids, thereby impeding the accuracy and/or effectiveness of flow measurements, cleaning, and internal inspection.

END OF SECTION 330130.01

SECTION 330130.02 - SEWER LINE CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specifications, apply to work of this section.
- B. Other Sections Referenced:
 - 1. Section 330130.01 - Sewer Collection System Rehabilitation Definitions

1.2 DESCRIPTION OF WORK

- A. The intent of sewer line cleaning is to remove foreign materials from the lines and restore the sewer to a minimum of 95% of the original carrying capacity or as required for proper lining of the pipe or seating of internal pipe joint sealing packers. Since the success of the other phases of work depends a great deal on the cleanliness of the lines, the importance of this phase of the operation is emphasized. It is recognized that there are some conditions such as broken pipe and major blockages that prevent cleaning from being accomplished or where additional damage would result if cleaning were attempted or continued. If in the course of normal cleaning operations, damage does result from pre-existing and unforeseen conditions such as broken pipe, the Contractor will not be held responsible.
- B. The intent of chemical root treatment is to kill tree roots in sanitary/storm sewer lines and to inhibit root regrowth without damaging the trees, the environment, or the treatment plant.

1.3 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 SUBMITTALS

- A. Equipment Data: Submit a listing of equipment to be used on the project. Provide equipment operating instructions if requested by the Owner.
- B. Chemical Root Removal Data:
 - 1. Submit manufacturer's technical data and application instructions.
 - 2. Submit Material Safety Data Sheet(s) for the chemicals to be used in the root removal process.
 - 3. Submit a specimen product label of foaming material to be used in chemical root treatment.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All equipment and material shall be of a type that has been in general use for a period of five (5) years. Work performed with experimental equipment or material will not be permitted without prior written consent of the Owner.

2.2 CLEANING EQUIPMENT

- A. **Hydraulically Propelled Equipment:** The equipment used shall be of a movable dam type and be constructed in such a way that a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer. The movable dam shall be equal in diameter to the pipe being cleaned and shall provide a flexible scraper around the outer periphery to insure removal of grease. If sewer cleaning balls or other equipment which cannot be collapsed is used, special precautions to prevent flooding of the sewers and public or private property shall be taken.
- B. **High-Velocity Jet (Hydrocleaning) Equipment:** All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines designated to be cleaned. Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.
- C. **Mechanically Powered Equipment:** Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the pipe will not be allowed. A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of 750 feet of rod. The rod shall be specifically heat-treated steel. To insure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

2.3 CHEMICAL FOAM ROOT REMOVAL

- A. The chemical root treatment material shall be EPA registered and labeled for use in sewer lines and acceptable to the state agencies having jurisdiction over its use.
- B. The active ingredient for killing roots shall be a nonsystemic herbicide which will kill roots at low concentrations but will not permanently affect parts of the plant distant from the treated roots. The active ingredient must be spontaneously detoxified by natural chemical/biochemical processes following its use. The active ingredient shall not adversely affect the performance of wastewater treatment plants.
- C. The active ingredient for inhibiting root regrowth in sanitary sewers shall inhibit root cell growth on contact but shall not be transported so as to damage other portions of the plant. The material shall form a persistent chemical barrier suppressing the growth of root tips.

The material shall be sufficiently stable under conditions of use to provide protection for 12 months but shall be subject to decomposition in wastewater treatment plants without disturbing plant processes.

- D. The root treatment material shall contain emulsifiers to degrease root masses and remove fatty acids from root tissue and surfactants to convert an aqueous solution of the root treatment agent into a volatile foam.

PART 3 - EXECUTION

3.1 CLEANING PRECAUTIONS

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

3.2 SEWER CLEANING

- A. The designated sewer manhole sections shall be cleaned using hydraulically propelled, high-velocity jet, or mechanically powered equipment. Selection of the equipment used shall be based on the conditions of lines at the time the work commences. The equipment and methods selected shall be satisfactory to the Engineer. The equipment shall be capable of removing dirt, grease, rocks, sand, and other materials and obstructions from the sewer lines and manholes.
- B. If cleaning of an entire section cannot be successfully performed from one manhole, the equipment shall be set up on the other manhole and cleaning again attempted. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire manhole section, it will be assumed that a major blockage may exist, the cleaning effort shall be suspended, and the Engineer shall be notified.

3.3 ROOT REMOVAL

- A. Roots shall be removed in the manhole sections where root intrusion occurs. Special attention should be used during the cleaning operation to assure complete removal of roots from the joints. Any roots which could prevent proper lining of the pipe, prevent the seating of a pipe joint packer, or prevent the proper application of chemical sealants shall be removed.

- B. Mechanical procedures may include the use of equipment such as rodding machines, bucket machines and winches using root cutters and porcupines, and equipment such as high-velocity jet cleaners.
- C. Chemical root treatment shall be used when directed by the Owner.
1. The Contractor's attention is directed to the safety requirements and precautions associated with the use of the root treatment material. The Contractor shall use precautions for the protection of all persons, vegetation, animals and property. The Contractor is responsible for damage to private property and vegetation.
 2. The Contractor is required to be knowledgeable of and in compliance with federal and state requirements relative to the root treatment material and its use. Compliance with federal and state law shall supersede compliance with the provisions of this contract.
 3. All mixing/application procedures for chemical root treatment shall be consistent with the latest standards, requirements and recommendations of the manufacturer of the chemical root treatment material used. Mixing and application of the root treatment material shall be done under the supervision of a state-certified pesticide (herbicide) applicator as required by law.
 4. When the root tips are damaged or removed by sewer line cleaning, chemical treatment will be less effective. Consequently, no mechanical cleaning is recommended in lines prior to chemical root treatment unless extensive grease, root masses, or debris preclude proper application of the material.
 5. Sewer service shall generally not be interrupted during root treatment. In situations where it is necessary to shut down upstream pumping stations or block/bypass upstream flows, the Contractor shall coordinate his activities with the Engineer and Owner and do the work at night or during periods of low flow.
 6. All materials shall be delivered to the site in undamaged, unopened containers bearing the manufacturer's original label. Mixing of the root treatment material shall be done no more than 12 hours prior to use. The water used shall be clear and free of acid, alkali, oxidizing agents, oil, or other organic materials. Mixing water temperature shall be between 40°F and 80°F.
 7. Where conditions permit, the volume of foam shall be sufficient to completely fill the air space above the flow, manhole to manhole. In all cases, the volume of foam delivered to the sewer line shall be sufficient to attach to and permeate all root masses.
 8. The foam shall be applied at sufficient pressure to penetrate a minimum of 5 feet into service connections.
 9. Root Removal: The Contractor shall wait a minimum of 90 days from application of the foam to removal of roots unless otherwise directed by the Engineer.
- D. All roots must be removed prior to grouting or lining. If roots are detected during either of grouting or lining, the Contractor shall remove his equipment and reclean the line to ensure root removal. This work shall be performed at no additional cost to the Owner if the manhole section was previously cleaned as a pay item.

3.4 MATERIAL REMOVED

- A. All sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned.
- B. Passing material from manhole section to manhole section, which could cause line stoppages, accumulations of sand in wet wells, or damage pumping equipment, shall not be permitted.
- C. When necessary or when directed by the Engineer, an approved dam or weir shall be constructed in the downstream manhole in such a manner that solids and debris will be trapped and retained. The cost of such a dam or weir shall be included in the cost of cleaning.

3.5 DISPOSAL of MATERIALS

- A. All solids or semisolids resulting from the cleaning operations shall be removed from the site and disposed of at a location approved by the Owner.
- B. Trucks hauling solids or semisolids from the site shall be watertight so that no leakage or spillage will occur.
- C. All materials shall be removed from the site no less often than at the end of each workday.
- D. Under no circumstances will the Contractor be allowed to accumulate debris, etc., on the site of work beyond the stated time, except in totally enclosed containers and as approved by the Owner.

3.6 FINAL ACCEPTANCE

- A. Acceptance of sewer line cleaning shall be made upon the successful completion of the television inspection and shall be to the satisfaction of the Owner.
- B. If TV inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to reclean and reinspect the sewer line at no additional expense to the City.
- C. In areas where television inspection is not performed, the Engineer may require the Contractor to pull a double squeegee (with each squeegee the same diameter as the sewer) through each manhole section as evidence of adequate cleaning.

END OF SECTION 330130.02

SECTION 330130.03 - SEWER FLOW CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specifications, apply to work of this Section.
- B. Other Sections Referenced:
 - 1. Section 330130.01 - Sewer Collection System Rehabilitation Definitions

1.2 DESCRIPTION OF WORK

- A. The intent of this work is to control the flow in the sewer to enable the successful inspection, rehabilitation or replacement of the pipe.
- B. Depth of flow shall not exceed that shown below for the respective pipe sizes when performing television inspection, joint testing and/or sealing.

Pipe Diameter Maximum Depth of Flow

1.	6" - 10" Pipe	-	25% of pipe diameter
2.	12" - 24" Pipe	-	33% of pipe diameter
3.	27" & up Pipe	-	40% of pipe diameter

- C. Flow shall be controlled or bypassed from sewer sections being lined or replaced. The methods used shall be in accordance with the work being performed.

1.3 QUALITY ASSURANCE

- A. When flow in a sewer line is plugged, blocked, or bypassed; sufficient precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging. Further, precautions must be taken to insure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

1.4 SUBMITTALS

- A. The Contractor shall submit a written request for Sewer Flow Control, specify the method and equipment to be used, and receive approval from the Owner prior to performing the work.
- B. For bypass pumping, submit shop drawings in accordance with the General Requirements showing pumps, piping layout plan and dimensions, schedule of pipe fittings and specials, materials and class for each size and type of pipe, joint details, and any special provisions

required for assembly. Provide a wet weather operation plan which describes what procedures will be followed when flow exceeds pumping capacity.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Sewer plugs shall be so designed that all or any portion of the sewage can be quickly released.
- B. Pumping and bypassing:
- C. Pumps bypass pipe, fittings, and joining methods shall be suitable and of a type normally used for raw sanitary sewage.
 - 1. The bypass system shall be of sufficient capacity to handle dry weather flow during a rainstorm.
 - 2. If pumping is required on a 24-hour basis, engines shall be equipped in a manner to keep noise to a minimum.
 - 3. Bypass piping to be furnished and installed shall include, but not limited to all pipe, fittings, specials, bends, beveled pipe, adapters, bulkheads, stoppers, plugs, joint restraints, joints and jointing materials, and pipe supports. Bypass piping shall be rated to twice the system operating pressure.
- D. Hydrocleaning equipment shall be equipped with high-velocity nozzles capable of pulling flow away from the pipe section being televised. The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

- A. The Contractor shall continuously supervise the level of water in the upstream and downstream sewers to ensure that harmful surcharging does not occur. The Contractor shall be responsible for any damage to the system and/or to public or private property resulting from improper execution of flow control measures.

3.2 PLUGGING OR BLOCKING

- A. A sewer line plug shall be inserted into the line upstream of the section being worked. During TV inspection, testing and sealing operations, flow shall be reduced to within the limits specified above. After the work has been completed, flow shall be restored to normal.

3.3 PUMPING AND BYPASSING

- A. When pumping and bypassing is required, the Contractor shall supply and install the pumps, conduits, and other equipment to divert the flow around the section in which work is to be performed. Under no circumstances will the discharge of raw sewage to other than sanitary sewers be allowed.
- B. The Contractor shall be responsible for furnishing the necessary labor and supervision to set up and operate the pumping and bypassing system.
- C. The proposed bypassing system shall be set up to allow traffic flow to local residents and businesses.
- D. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- E. Make connections to all existing force mains being bypassed.
- F. Install temporary bypass piping with restrained joints at horizontal and vertical changes in direction.
- G. Provide granular material for bedding and encasement of temporary piping when buried below pavement.
- H. Field test bypass piping and obtain approval from the Engineer prior to placing bypass system in service.
- I. Do not remove pumping and bypass system until it is no longer needed and can be replaced by authorized use of completed permanent facilities.

3.4 HYDRAULIC FLOW CONTROL

- A. This method shall be used for sewer televising only. The Contractor shall position the high-velocity nozzle no less than five (5) feet ahead of the television camera. Pressures shall be just sufficient to reduce the flow level in front of the camera to the specified depth. The jet nozzle shall be reeled in at the same rate as the forward movement of the television camera to maintain the separation distance.

END OF SECTION 330130.03

SECTION 330505.09 - PIPE JOINTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The installation of all piping, fittings, valves, hydrants, etc. in the performance of pipeline construction work shall include the making of one or more types of pipe joints as specified herein.

1.3 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and application instructions.

PART 2 - PRODUCTS

2.1 PUSH-ON TYPE JOINTS

- A. Push-on type of joints for cast iron and ductile iron pipe shall be made where shown on the plans and as specified herein in strict accordance with the manufacturer's recommendations.
- B. No more than one joint at a time shall be "pushed home". In the event that two (2) or more joints are "pushed home" simultaneously, the Contractor shall remove all pipe which was not pushed home "one at a time" and remove and discard the "used" gaskets and relay the pipe "one at a time".
- C. Rubber gaskets shall be a rubber O-ring type shaped to fit the particular inside configuration of the bells of the pipe being installed and shall produce a leak-free piping system.
- D. Immediately prior to assembly, thoroughly clean all pipe surfaces which the rubber gasket contacts, insert the gasket properly and lubricate the joint surfaces.
- E. All ends shall be beveled and square to the pipe barrel and shall be kept in a straight and square alignment to the receiving bell during assembly.

- F. No weight will be allowed for nor payment made for the gasket or lubricant used, but the cost thereof shall be included in the unit price bid for compression joint cast iron and/or ductile iron pipe and fittings.
- G. All "job" cut pipe ends shall be ground, filed or otherwise properly worked on so as to be both square to the pipe barrel and beveled similar to "factory" finished pipe ends. There shall be no "burrs" on any part of the cut pipe end.

2.2 FLANGED JOINTS FOR CAST IRON/DUCTILE IRON PIPE AND FITTINGS

- A. All flanged joints shall be thoroughly bolted with through, stud or tap bolts of required size. Full face type rubber gaskets of an approved quality equal in all respects to "Rainbow" gaskets one sixteenth (1/16) inch thick as manufactured by the U.S. Rubber Company shall be used in all flanged joints. All bolt heads and nuts shall conform in dimensions to the American Standard heavy series and nuts shall be hexagonal cold pressed with well fitting threads. Bolts and nuts shall be cadmium plated by an approved process with a plate thickness of 0.0003 to 0.0005 inches. In lieu of cadmium plating, galvanizing will be acceptable. All studs shall be made from silicon bronze ASTM B 124 with bronze nuts where used in contact with any liquid or buried underground or as called for on the contract drawings.
- B. All nuts and bolts that come into contact with water shall be painted with two (2) heavy coats of Inertol No. 49 thick or approved equal, made for bolts, studs, nuts or gaskets used for flanged joints, and the cost thereof shall be included in the unit price bid for flanged cast/ductile iron pipe and flanged cast/ductile iron fittings.

2.3 MECHANICAL JOINTS

- A. All mechanical joints shall be thoroughly bolted in accordance with the manufacturer's recommendations with cadmium plated tee head bolts and nuts of high strength, heat treated cast iron or other approved materials having a minimum yield strength of forty- five thousand (45,000) pounds per square inch and an ultimate tensile strength of seventy thousand (70,000) pounds per square inch. Gaskets for sludge, gas, waste lines, etc., shall be plain rubber gaskets coated with Thickol or ASTM D 2000, Type SA-710, or equal. Gaskets for water service shall be plain rubber gaskets made of first grade plantation rubber in accordance with ANSI A21.11. Glands shall be of high strength cast/ductile iron.
- B. Where connections are made between wrought iron pipe and mechanical joints, an approved type of transition gasket and fitting shall be used in the mechanical joint in accordance with the manufacturer's standards and recommendations.
- C. All "job" cut pipe ends shall be ground, filed or otherwise properly worked on so as to be both square to the pipe barrel and beveled similar to "factory" finished pipe ends. There shall be no "burrs" on any part of the cut pipe end.
- D. Joint bolts shall be tightened by the use of approved wrenches and to a tension recommended by the pipe manufacturer. Overstressing of bolts to compensate for poor installation practice shall not be permitted.

- E. If sections of pipeline are "preassembled", at a location other than the intended final resting location of the piping, so as to include a fitting or line valve, the Contractor shall handle such "preassembled" sections so as to avoid deflections greater than allowed in published data normally provided by the respective pipe manufacturer. Such sections shall be limited in length to include no more than a standard length of pipe plus one (1) fitting and shall contain no more than two (2) preassembled joints. Any excessively deflected "preassembled pipe" shall be disassembled, the gaskets shall be discarded, and reassembled (if it be repeated) all at the Contractor's risk and expense.
- F. Where joints are underground, bolts and nuts shall be stainless steel Type 316.
- G. Where shown on the drawings, or ordered, mechanical joints shall be provided with approved restraint system.
- H. No special payment will be made for lock type joints, glands, bolts, nuts or gaskets used for mechanical joints, but the cost thereof shall be included in the unit price bid for mechanical joint cast/ductile iron pipe and mechanical joint cast/ductile iron fittings. Payment on a tonnage basis will be based on the body weight of the pipe or fittings only and will not show additional weight of accessories.
- I. Approved joint restraints will be paid for as a part of their respective pipeline construction.

2.4 BOLTLESS RESTRAINED JOINT

- A. Boltless restrained joints shall be used where waterline is placed inside a casing pipe and also where called for on the drawings or as directed by the Engineer to provide restraint against external forces or against separation due to internal pressure.
- B. Types of boltless restrained joints acceptable are "Super-Lock" by Clow Corporation, "Lok-Fast" by American Cast Iron Pipe Company, "Lok-Tyte" by United States Pipe and Foundry Company or equal.

PART 3 - INSTALLATION (NOT APPLICABLE)

END OF SECTION 330505.09

SECTION 330519 - DUCTILE IRON PIPE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The Contractor shall furnish all the materials for and shall properly place at the locations shown on the drawings or as directed, all ductile iron pipe of the sizes specified, shown or required for the proper completion of the work included under this contract.

1.3 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and application instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All ductile iron pipe shall conform to AWWA C151 with the ends being designed for one of the type joints as specified herein.
- B. To assure that the iron is suitable for satisfactory drilling and cutting, the chemical constituents shall meet the physical property recommendations of ASTM A 536.
- C. The minimum wall thickness of the pipe barrel shall be that indicated in ANSI A21.50 (AWWA C150) for laying condition "2", 150 psi internal working pressure and a surge pressure of 100 psi and 5 ft. depth of cover unless otherwise indicated on the drawings. ANSI A21.50 (AWWA C150) CLASS 52 shall be the minimum thickness class for ductile iron pipe furnished under this specification unless otherwise shown on the drawings.

2.2 COATING AND LINING

- A. The outside surface of all ductile iron pipe shall be shop coated with either a coal tar or asphalt base bituminous material. If this coating material is found to be damaged prior to the pipe trench being backfilled, the Contractor shall provide and apply additional material of that required to repair the damages. The Contractor shall have sufficient coating material available at the job site prior to laying the pipe.

- B. The interior of the pipe shall be lined with cement mortar and seal coated in complete conformance with ANSI A21.4 (AWWA C104).

2.3 JOINTS

- A. Mechanical Joints and Push-on Joints including their respective appurtenances shall conform to ANSI A21.11 (AWWA C111).
- B. Flanged Joints shall conform to AWWA C110 or ANSI A21.10. Flanged joints shall not be installed underground except within structures as indicated on plans or directed by the Engineer.
- C. Appurtenances used to make flanged joints shall include: one-eighth (1/8) inch thick rubber gaskets, bolts having American Standard Heavy Unfinished Hexagonal Head and Nut dimensions in conformance with ANSI B18.1, and material for bolts and nuts shall conform to ASTM A 575 or A 576.

2.4 POLYETHYLENE ENCASEMENT

- A. The ductile iron pipe, fittings and appurtenances buried underground, shall be encased with 8 mil polyethylene film conforming to AWWA C105, unless noted otherwise.
- B. All joints in polyethylene film shall be sealed with polyethylene adhesive tape.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All trenches, when pipe laying is in progress, shall be kept dry and all pipes and specials shall be laid accurately to the required lines and grades and shall be uniformly supported along their entire lengths. The bottom of the excavation shall be properly trimmed, with holes at each joint to receive the bell and to permit the properly cementing the joints.
- B. Pipe shall be fully entered and shall abut against adjacent pipe and in such a manner that there will be no unevenness along the inverts.
- C. When pipes enter or pass through concrete walls, manholes, sewers or other structures, holes shall be provided and the pipes properly cemented in place so as to form a watertight joint.

END OF SECTION 330519

SECTION 330519.03 - CAST GREY IRON/DUCTILE CAST IRON FITTINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The Contractor shall furnish all the materials for and shall properly place at the locations shown on the drawings or as directed, all cast grey iron/ductile iron fittings of the sizes specified, shown or required for the proper completion of the work included under this contract.

1.3 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and application instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All standard and special cast grey iron/ductile iron castings shall conform to the latest applicable AWWA and/or ANSI specifications for pressure fittings with end conditions as specified herein. AWWA C110 (ANSI A21.10) shall be applicable for all cast grey iron/ductile iron fittings.

2.2 PRESSURE RATINGS

- A. Fittings for pipe sizes of 12 inch diameter and smaller shall be rated for 250 psi working pressure and fittings for pipe sizes of 14 inch diameter and larger shall be rated for 150 psi working pressure in accordance with AWWA C110. Fittings for higher working pressures will be noted on the plans.

2.3 END CONDITIONS

- A. The end conditions of each fitting shall be as required to accommodate the jointing requirements for the particular pipe material being connected to the fitting in accordance

with the piping layout shown on the plans. The particular pipe material to be connected to the fitting is specified elsewhere in these specifications.

2.4 COATING AND LINING

- A. The outside surface of all cast grey iron/ductile iron fittings shall be shop coated with either a coal tar or asphalt base bituminous material. If this coating material is found to be damaged prior to the pipe trench being backfilled, the Contractor shall provide and apply additional material of that required to repair the damages. The Contractor shall have sufficient coating material available at the job site prior to laying the pipe.
- B. The interior of each fitting shall be lined with cement mortar and seal coated in complete conformance with ANSI A21.4 (AWWA C104).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All fittings shall be installed at the locations and grades shown on the plans or as directed by the Engineer. Mis-located fittings shall be relocated to the required location by the Contractor at his own expense.
- B. All joints shall be made in accordance with these specifications.
- C. Thrust restraint shall be provided in accordance with the plans and specifications.

END OF SECTION 330519.03

SECTION 331413 - WATERLINE CONSTRUCTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. This work shall consist of the construction of a potable water pipeline in accordance with these specifications and in reasonably close conformity to the lines and grades indicated on the plans or as established by the Engineer. This work shall include excavating for pipe, fittings, valves, thrust blocks and other appurtenances, clearing and grubbing and the removal of all materials necessary for placing the pipe, except removals listed separately; furnishing and placing granular or concrete bedding and granular backfill as required, constructing and subsequently removing all necessary cofferdams, cribs, and sheeting, pumping and dewatering, making all pipe joints as required, installing all necessary pipe, joining to existing and proposed appurtenances as required, performing leakage tests as specified, disinfecting and restoration of disturbed facilities and surfaces. Arrangements for and the performance of the adequate and satisfactory disposal of all test and disinfection waters shall be the Contractor's responsibility. The Contractor shall chlorinate the water main as often as necessary to achieve an approved potable water test.

1.3 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and application instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Pipe, fittings, specials, valves, joint materials, hydrants, thrust blocks, backfill and other appurtenances shall be the size and kind specified in the proposal and shown on the plans.

PART 3 - EXECUTION

3.1 LAYING PIPE

- A. The Contractor shall furnish all of the proper tools and equipment required for the safe, proper handling and laying of all pipe, fittings, and specials that are to be installed in this work. All storage, handling, laying, and backfill methods shall be performed so as to avoid damaging either the interior or the exterior surfaces of all pipe fittings, specials, joint materials, or other appurtenances, and any such damage shall be remedied at the Contractor's expense.
- B. Before any pipe is lowered into the trench, it shall be inspected for damage, and any unsatisfactory lengths shall be rejected. Cast metal pipe and fittings shall be inspected for cracks by ringing with a light hammer while suspended. The interior and exterior of each pipe length used shall be cleaned as necessary to remove all dirt or other foreign material before it is inspected. The interior of the pipe shall be kept clean until the work is accepted.
- C. No pipe shall be laid in water, mud or when trench conditions or weather is unsuitable for such work.
- D. If mud, surface water, leaves and/or other debris have been permitted to enter the strung-out pipe, the inside shall be cleaned with a strong hypochlorite solution after all such foreign materials are completely cleaned from the pipe and before the pipe is lowered into the trench.
- E. Pipe shall not be pushed off the bank nor shall it be permitted to fall into the trench. Each type of pipe, fitting, special or other appurtenances shall be handled in strict accordance with recommendations of its respective manufacturer.
- F. No rocks, stones, metal, concrete, bricks, pavement pieces, wood, soil lumps or other hard materials too big to pass through a six (6") inch screen shall be permitted within six (6") inches of the pipe after it is laid in the trench. Any pipe endangered by such debris shall be subject to removal and disposal at the Contractor's expense.
- G. When pipe laying is not in progress, the open ends of installed pipe shall be closed by appropriate means to prevent the entrance of dirt and water. In the event ground water, sewage water or other potential contaminants enter any portion of the pipeline, after it is laid, cleaning and preliminary disinfection with a strong hypochlorite solution shall be done.
- H. Pipe lengths shall not be deflected at the joint to any greater degree than recommended by the manufacturer of the particular joint being used. Where deflections in excess of such recommendations are necessary, the appropriate specifications for the particular type of pipe being installed shall govern the mode of accomplishing such excessive deflections.

3.2 JOINTING PROCEDURES

- A. The particular method of making up pipe joints shall be governed by the type of pipe material and type of joint in accordance with the drawings and/or specifications.

3.3 ANCHORAGE

- A. All hydrants, plugs, caps, tees and bends shall be provided with a reaction backing or shall be restrained by attaching suitable metal rods, clamps, anchored fittings or harnessed joints, as shown on the plans or as specified so as to prevent movement.
- B. Reaction backing shall be of concrete, with steel reinforcement as required, unless otherwise shown on the drawings. Backing shall be placed between solid ground and the fitting or other part of the pipeline to be anchored; the area of bearing on the pipe and on the ground in each instance shall be that as indicated on the plans. The backing shall be so placed unless otherwise directed, that the pipe and fitting joints will be accessible for repair.
- C. Steel tie rods or clamps of adequate strength to prevent movement may be used instead of concrete backing. Steel tie rods or clamps shall be used to connect the hydrant watch valves to the main and to connect the hydrant to the water valves when shown on the drawings. Steel rods or clamps shall be painted with three coats of an approved bituminous paint or coat tar enamel.

3.4 BACKFILLING

- A. Backfilling shall be accomplished in a two-step procedure as follows: 1) partial backfill before leakage tests, and 2) completion of backfill after tests. Departure from this procedure due to traffic or other conditions shall be approved by the Engineer.
- B. Frostproofing shall be installed when the waterline is installed with less than 5 feet of cover when passing over existing waterlines. The frostproofing shall be wilcolite, gilsulate or an approved equivalent.

3.5 MAINTENANCE OF EXISTING DITCHES

- A. The Contractor shall use the utmost care in maintaining ditches and other waterways, and, if either bottoms or banks of such ditches are disturbed, they shall be promptly restored and maintained for the life of the guaranty period. Similar care shall be used in preventing damage to existing pavement by caving of trench walls and undermining such pavement. If pavement is damaged, the Contractor shall repair same at his own expense.

3.6 CLEARING SITE AND RESTORING DAMAGED SURFACES

- A. Upon completion of the backfill work, the Contractor shall immediately remove and dispose of all surplus materials including dirt and rubbish.

- B. Unless otherwise called for on the plans, the Contractor shall replace all pavement, sidewalks, sod, or other surfaces disturbed to a condition equal to that existing before the work was started, furnishing all materials, labor, equipment, etc., at no additional cost to the Owner.
- C. All restoration of lawns shall be performed in accordance with these specifications as a part of performing the work as specified herein.
- D. All restoration of driveways, sidewalks, roadways and shoulders (berms) shall be in accordance with these specifications as a part of performing the work as specified herein.
- E. Upon completion of the foregoing work, all tools and other property belonging to the Contractor shall be removed, and the site shall be left in good condition.

3.7 LEAKAGE TESTS

- A. All pipeline construction shall be subjected to hydrostatic leakage testing of each valved section, as it is completed, unless otherwise directed by the Engineer. All pipes, valves, fittings, etc. shall be laid in such a manner as to leave all joints watertight.
- B. Each section of pipe being tested shall be filled slowly with water, and, before applying the specified test pressure, all air shall be expelled from the pipe. The method of obtaining and placing test water(s) into the pipeline shall be approved by the Engineer.
- C. The test shall be observed by the Engineer or his designate. The Water Department will furnish a pressure gauge for measuring the pressure on the water main. The Contractor shall furnish a suitable pump, pipes, bulkheads and all appliances, labor, fuel, and other appurtenances necessary to make these tests.
- D. The test pressure shall be maintained for sufficient length of time to allow for a thorough examination of joints and elimination of leakage where necessary. The pipeline shall be made absolutely tight under the test pressure.
- E. The Contractor shall drain each section of the waterline piping after it has been tested. If the drains are connected to valve or drain vaults, then, within a reasonable period of time after the test has been completed, the Contractor shall pump all water out of the vaults.
- F. In cold weather, immediately after testing a section of the waterline piping, the Contractor shall open all valves, air cocks, by-passes, and drains; shall drain that section of the pipeline, including the bonnets of all valves contained therein, and shall take all other precautions necessary to prevent injury due to freezing to the water main, piping and appurtenances.
- G. Every precaution must be taken to remove, valve-off, or otherwise protect delicate control equipment in or attached to pipelines to prevent damage or injury thereto.
- H. Leakage is defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, as required to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled as herein required.

- I. In calculating leakage, the Engineer will not make allowance for any leakage at the valves, the removable bulkheads, etc.
- J. The evaluation of actual leakage to standard pressure leakage is calculated by the application of the ratio determined from the square root of respective pressures, other factors being equal.
- K. The test pressure shall be 250 psi unless otherwise specified elsewhere in these specifications. Testing procedure shall be as specified herein for the particular pipe material contained in the section tested and shall be subject to modification as required by a particular pipeline material specification or part thereof, as contained elsewhere in these specifications.
- L. For cast iron pipe (CIP) or ductile iron pipe (DIP), AWWA C 600 shall govern the test, except that the allowable leakage rate shall be 12 gpd per mile of pipe per inch of diameter.
- M. All defective materials and construction found in the pipeline as a result of leakage tests shall be corrected by removal of the defective materials and reconstruction with sound materials and construction. The entire section shall then be retested in accordance with the foregoing.
- N. Any testing performed without the knowledge of the Engineer shall not be considered a test for the purpose of this specification.
- O. The lack of hydrants, branch shutoff valves, or any other attachments to the line being tested shall not preclude the testing of each valved section as it is completed. In the event that hydrants, branch shutoff valves or any other attached appurtenances are not available for installation prior to testing of each valved section, then plugs or other approved means of containing line pressure must be utilized so as to test each valved section of main line as it is completed. A retest of each valved section will then be necessary after all appurtenances are installed. There will be no additional payment for any such retests.
- P. The Contractor shall provide all pressure test equipment. The Water Department shall provide all test water required and shall provide test gauges.

3.8 DISINFECTION

- A. Prior to disinfection, all pipeline construction shall be flushed to remove any foreign material. Flushing shall be performed after completion and approval of the leakage tests. The minimum requirements for flushing are as follows:

<u>Pipe Size</u>	<u>Minimum GPM Required</u>
6"	220
8"	390
10"	610
12"	880
14"	1,200
16"	1,565
18"	1,980

20"	2,450
24"	3,500

- B. Flushing at these rates shall be continued for at least five (5) minutes. In the event the foregoing requirements cannot be met due to the Water Department's facilities being inadequate, alternate rate(s) and duration(s) of flushing shall be used.
- C. Disinfecting water mains shall be in accordance with AWWA C 651 and as specified herein.
- D. The following disinfectants may be used: Chlorine or chlorine water; calcium hypochlorite; sodium hypochlorite solution, or chlorinated lime-water mixture. Chlorine shall be applied at one extremity of a pipe section via a corporation stop (installed in the top of the pipe by the Contractor) and bled at the opposite extremity of a properly segregated section. Precautions shall be taken to prevent dosed water from flowing into the potable water supply. All high points on the section treated shall be properly vented for air escape.
- E. The rate of applying the disinfectant shall provide at least 25 ppm (mg per liter) chlorine dose at the outlet end of the line section being treated. The disinfecting period shall be twenty-four (24) hours, and, at the end of this period, a chlorine residual of at least 10 mg per liter shall exist at the outlet end of the line.

In the event of unfavorable or unsanitary conditions of installation, poor packing, or high pH, the period of disinfection may be extended. For shorter periods of disinfection, higher dosages shall be required.

- F. Sterilizing water shall be disposed of in a satisfactory manner by the Contractor. If the foregoing disinfection procedure fails to provide thorough disinfection of the line, it shall be repeated as necessary in the pipeline for a period of 20 - 30 days after it is placed into operation.
- G. Tests for efficacy of sterilization shall be made by the Water Department, and repeated sterilization shall be carried out by the Contractor when required.
- H. Contractor shall provide all disinfectants and disinfection equipment. Water Department shall provide all test waters needed.

END OF SECTION 331413

SECTION 334100 - STORM DRAINAGE SYSTEM

PART 1 GENERAL

1.1 SUMMARY

- A. Furnishing all labor, materials, tools, equipment, and services for all storm sewers as shown on the Drawings.
- B. Although such is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a functional and complete installation.

1.2 RELATED DOCUMENTS AND SECTIONS

- A. Section 013543 – Environmental Protection
- B. Section 013319 – Field Testing Requirements
- C. Section 310000 - Earthwork

1.3 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Granular pipe bedding and cover material specified in Section 310000 - Earthwork
- B. Special backfill material specified in Section 310000 - Earthwork

1.4 SUBMITTALS

- A. Product Data
 - 1. PVC pipe, each type specified
 - 2. Polyethylene pipe
 - 3. Reinforced concrete pipe, each type specified
 - 4. Vitrified clay pipe
 - 5. Ductile iron pipe
 - 6. Manhole castings
 - 7. Precast concrete manholes and inlets
 - 8. Concrete masonry block
 - 9. Brick
 - 10. Manhole steps
- B. Shop Drawings
 - 1. Precast concrete manholes showing:
 - a. Orientation plan for each manhole or inlet indicating where all pipes connect.
 - b. The size and elevation of connecting pipes.
 - c. Details of drop connections.
 - d. Invert concrete channeling details.

- e. Pipe to manhole connection details.
 - f. Casting and step orientation.
 - 2. Precast concrete inlets
- C. Samples
- D. Quality Control Submittals
 - 1. Design Data
 - 2. Test Reports
 - 3. Certificates
 - a. Evidence of current membership in specified manufacturer's associations.
 - b. Evidence of ODOT precertification for the manufacturing RCP pipe.
 - c. Evidence of National Precast Concrete Association (NPCA) certification for the manufacture of precast concrete manholes, inlets and catch basins.
 - 4. Manufacturers Instructions
- E. Contract Closeout Submittals
 - 1. Project Record Documents
 - 2. Operation and Maintenance

1.5 REFERENCES

- A. ASTM A-48 Standard Specification for Gray Iron Castings
- B. ASTM A-536 Standard Specification for Ductile Iron Castings
- C. ASTM C-12 Standard Practice for Installing Vitrified Clay Pipe Lines
- D. ASTM C-32 Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale)
- E. ASTM C-55 Standard Specification for Concrete Building Brick
- F. ASTM C-76 Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
- G. ASTM C-139 Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
- H. ASTM C-150 Standard Specification for Portland Cement
- I. ASTM C-270 Standard Specification for Mortar for Unit Masonry
- J. ASTM C-425 Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings
- K. ASTM C-443 Standard Specifications for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets

- L. ASTM C-478 Standard Specifications for Precast Reinforced Concrete Manhole Sections
- M. ASTM C-507 Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe
- N. ASTM C-700 Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
- O. ASTM C-990 Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
- P. ASTM C-1173 Standard Specification for Flexible Transition Couplings for Underground Piping Systems
- Q. ASTM D-2321 Standard Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe
- R. ASTM D-3034 Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
- S. ASTM D-3212 Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
- T. ASTM F-477 Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- U. ASTM F-679 Standard Specification for Poly(Vinyl Chloride) (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings
- V. ASTM F-1336 Standard Specification for Poly(Vinyl Chloride) (PVC) Gasketed Sewer Fittings
- W. ANSI/AWWA C111/A21.11 American National Standard for Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings
- X. ANSI/AWWA C151/A21.51 American National Standard for Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water and Other Liquids
- Y. AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. Through 12 in., for Water Distribution
- Z. State of Ohio - Department of Transportation - Construction and Material Specifications as amended to date, Item 703.03, Fine Aggregate for Mortar or Grout.
- AA. State of Ohio - Department of Transportation - Construction and Material Specifications as amended to date, Item 706.04, Reinforced Concrete Elliptical Culvert, Storm Sewer, and Sewer Pipe.

- AB. State of Ohio - Department of Transportation - Construction and Material Specifications as amended to date, Item 706.10, Bituminous Pipe Joint Filler
- AC. State of Ohio - Department of Transportation - Construction and Material Specifications as amended to date, Item 706.13, Precast Reinforced Concrete Manhole Riser Sections, Catch Basin and Inlet Tops, and Temporary Barrier
- AD. State of Ohio - Department of Transportation - Construction and Material Specifications as amended to date, Item 707.33, Corrugated Polyethylene Smooth Lined Pipe

1.7 QUALITY ASSURANCE

- A. Qualifications
- B. Regulatory Requirements
- C. Certifications
- D. Field Samples
- E. Pre-Installation Conference

1.8 PROJECT CONDITIONS

- A. Environmental Requirements
- B. Existing Conditions
 - 1. Verify locations of underground utilities.
 - 2. Protect existing structures and utilities from damage. Repair if damaged by this work.
 - 3. Do not change pipe sizes without securing written approval of Engineer.
- C. Field Measurements
 - 1. If it becomes necessary to change location of storm drainage lines due to underground utility interference, secure approval of Engineer.
 - 2. If Contractor initiated, make changes approved by the Engineer without added cost to Owner.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping
- B. Acceptance at Site
 - 1. All material and all equipment shall be subject to visual inspection and acceptance or rejection after delivery to the site of the work. All rejected material shall immediately be removed from the site.

C. Storage and Protection

1.10 SEQUENCING AND SCHEDULING

- A. Perform no pipe work in fill areas until embankment or fill has been completed to at least two (2) feet above proposed top of pipe and fill has been properly compacted.

PART 2 - PRODUCTS

2.1 PIPE

- A. Polyvinyl Chloride Pipe (PVC) 4" - 15" Diameter
1. All polyvinyl chloride pipe in this size range shall conform to ASTM D-3034 SDR 35, shall be integral bell and spigot type, with joints conforming to ASTM D-3212 and elastomeric seals conforming to ASTM F-477.
 2. All pipe and fittings shall be marked or stenciled in conformance with ASTM D-3034. All gaskets shall be marked or stenciled with the ASTM specification designation, name or trademark of the manufacturer, and pipe size.
 3. Acceptable manufacturers shall be current members of the Uni-Bell Plastic Pipe Association.
- B. Polyvinyl Chloride Pipe (PVC) 18" - 36" Diameter
1. All large diameter polyvinyl chloride pipe shall conform to ASTM F-679 PS115, shall be integral bell and spigot type, with joints conforming to ASTM D-3212 and elastomeric seals conforming to ASTM F-477.
 2. All pipe and fittings shall be marked or stenciled in conformance with ASTM F-679. All gaskets shall be marked or stenciled with the ASTM specification designation, name or trademark of the manufacturer, and pipe size.
 3. Acceptable manufacturers shall be current members of the Uni-Bell Plastic Pipe Association.

2.2 PRECAST REINFORCED CONCRETE MANHOLE RISER SECTIONS, INLETS AND CATCH BASINS

- A. All precast concrete units shall conform to ASTM C-478 and ODOT Item 706.13.
- B. Joints between manhole units shall be gasketed and shall comply with the requirements of ASTM C-443. All gaskets shall be marked or stenciled with the ASTM specification designation, name or trademark of the manufacturer, and pipe size.
- C. Joints between inlet or catch basin sections shall be sealed with material conforming to ODOT Item 706.10.
- D. The standard length of manhole riser units shall be 48 inches. Lengths of 32 inches or 16 inches shall be used to meet required dimensions.

- E. Openings for connecting pipes in riser units, bottom riser units, integral base units, and for access in flat slabs shall be preformed or cored by the manufacturer. Cut-out openings shall be made immediately after the pipe is removed from the casting form.
- F. Connectors between new precast concrete manholes and pipes shall be made by casting the connector integrally with the manhole wall. The connectors shall be "X-Cel" Type as manufactured by A-Lok Products; or an approved equivalent.
- G. All openings in existing manholes, inlets or catch basins shall be field cored.
- H. Annular spaces at pipe entrances shall be field sealed with a one component, hydraulic cement based, fast setting repair mortar equal to Thoro Products Waterplug as manufactured by ChemRex Inc., Shakopee, MN.
- I. The top four (4) inches to twelve (12) inches of the manhole shall provide for adjustment of casting to grade. Adjustment shall be through the use of a maximum of two (2) precast concrete adjusting collars.
- J. Precast concrete shall be manufactured by an NPCA certified plant.

2.3 MASONRY MANHOLE RISERS, INLETS AND CATCH BASINS

- A. General
 - 1. All inlets and catch basins shall be constructed of precast concrete unless the project involves reconstruction of existing inlets/catch basins.
- B. Concrete Masonry Block
 - 1. Block used in catch basins, inlets, storm manholes, and storm junction chambers shall be concrete masonry block conforming to ASTM C-139. The exterior of the masonry structures shall be parged with one-half (½) inch mortar.
- C. Brick
 - 1. Brick used in catch basins, inlets, storm manholes, and for grade adjustment shall conform to ASTM C-32, Grade MS.
- D. Masonry Mortar
 - 1. Mortar shall conform to ASTM C-270, Type M, but shall not contain masonry cement.
 - 2. Mortar shall be UltraMortar Type M as manufactured by UltraKote Products, Inc. or Lafarge Mortar Cement, Type M as manufactured by Lafarge Corporation, or approved equal.
 - 3. Only sufficient mortar shall be prepared for immediate use, and any mortar that has set shall not be retempered or used in the work.
 - 4. Setting accelerators or anti-freeze compounds shall not be used.

- E. Sand
 - 1. Natural double washed sand conforming to the sieve size, soundness, and aggregation requirements of ODOT Item 703.03.
- F. Water
 - 1. All water used for mortar shall be free from organic matter, acids and strong alkalis and shall be of potable quality.

2.4 PVC INLETS AND CATCHBASINS

- A. All PVC inlets shall be manufactured from PVC pipe stock conforming to ASTM D-3034 and ASTM F-1336, using a thermo-molding process to reform the pipe stock to the configuration shown on the Drawings. The connection stubs shall conform to ASTM 3212.

2.5 MANHOLE STEPS

- A. All steps shall be minimum of twelve (12) inches in width with safety side lugs to prevent slipping and shall conform to the latest OSHA requirements. Manhole steps shall be of polypropylene plastic reinforced with a 3/8", No. 60 grade epoxy coated reinforcing rod.
- B. Manhole steps shall conform to the requirements of ASTM C-478.
- C. Acceptable manufacturers are:
 - 1. American Step Company, Inc.
 - 2. Lane International, Inc.
 - 3. M. A. Industries, Inc.

2.6 CASTINGS

- A. All castings shall be true to pattern and free from cracks, gas holes, flaws and excessive shrinkage. Surfaces shall be free from burnt-on sand and shall be reasonably smooth. Runners, fins, risers and other cast-on pieces shall be removed. Castings for frames, grates, covers and for any other purpose under these specifications shall conform to all the requirements for Class No. 35B for Gray Iron Castings conforming to ASTM A-48. All castings shall be commercially machineable and, in the case of manholes, the frame and cover shall be so machined that it will be impossible to rock the cover after it has been seated in the proper position in the frame.
 - 1. Frames, grates and covers shall be as detailed on the Drawings.
 - 2. Frame, grate, and cover shall be painted with one coat of the manufacturer's standard asphaltum paint.
- B. Acceptable manufacturers are:
 - 1. East Jordan Iron Works
 - 2. Neenah

- C. Castings for PVC inlets shall meet the requirements of Paragraph A above, except that castings may be ductile iron conforming to ASTM A-536 grade 70-50-05 and shall be supplied by the inlet manufacturer.

2.7 COUPLINGS

- A. Couplings for connecting dissimilar pipe materials or pipe sizes shall be a rubber type coupling with a sealing "O" ring under each of two sealing clamp bands and a Type 316 stainless steel shear ring. Coupling shall be manufactured with natural and synthetic rubbers conforming to ASTM C 425 and ASTM C 1173.
- B. Coupling shall be Flex-Seal Adjustable Repair Coupling as manufactured by the Mission Rubber Company, Corona, CA, or approved equal.

PART 3 - INSTALLATION

3.1 ALIGNMENT AND GRADE

- A. Horizontal and Vertical Control
 - 1. All horizontal and vertical control required for the complete layout and performance of the Work under this contract shall be done by a registered surveyor at the Contractor's expense, and any observations by the Engineer of the Contractor's methods will not relieve the Contractor of his responsibility.
 - 2. The Contractor shall be solely responsible for the accuracy of all horizontal and vertical control.
- B. Alignment and grade shall be established by means of a laser beam.
- C. The Contractor shall furnish all material and labor to establish line and grade of the generated laser beam from the benchmarks and control points indicated on the Drawings. The laser shall be securely anchored and checked periodically by the Contractor. The laser calibration shall be demonstrated when requested by the Engineer. Strict adherence to the manufacturer's operation procedure shall be observed. Only qualified and trained employees may be assigned to install, adjust, or operate laser equipment, and proof of qualifications of the equipment operator must be available at all times. Areas in which lasers are used must be posted with standard laser warning placards, and the laser beam shall be turned off when not needed. During rain, snow, dust, excessive heat, or fog the operation of laser systems shall be prohibited where practicable because of beam scatter.

3.2 PIPE INSTALLATION

- A. All pipe installation shall conform to the trench and bedding details shown on the Drawings.
- B. PVC pipe shall be installed in full compliance with ASTM D-2321. Clay pipe shall be installed in full compliance with ASTM C-12. All concrete pipe shall be

installed in conformity with recommended practices published by the American Concrete Pipe Association in the "Concrete Pipe Installation Manual".

- C. Only one type and strength of pipe shall be used between any two consecutive manholes, unless otherwise shown on the Drawings.
- D. After the trench has been excavated and the pipe bedded , the pipe shall be laid to the line and grade as shown on the Drawings. All joints shall be made as hereinafter specified. In no case shall any material except bedding material be placed under the bell of the pipe to secure proper grade.
- E. Prior to being lowered into the trench, each pipe shall be carefully inspected and those which are damaged or not meeting the specified requirements shall be rejected and clearly marked as rejected and removed from the Work. Satisfactory means shall be used to hold the pipe in line until embedment of pipe is complete. Precautions shall be taken to insure that the spigot end of the pipe being laid is pushed the proper depth into the bell of the preceding pipe.
- F. All conduit shall be laid starting at the outlet end and laid with the bell end upstream.
- G. In no case shall more than thirty (30) feet of trench be opened in advance of the pipe laying operations.
- H. Conduit shall not be laid in water, mud, or any otherwise unsuitable trench No drainage shall run through the newly laid pipe. All sewers shall be temporarily capped with a watertight seal at the open ends at the completion of each day's work and no drainage water shall be permitted to flow through the sewer.
- I. All trenches and excavations shall be backfilled as specified as soon as possible after the pipe is laid and jointed. Where concrete encasement or cradle is used, pipe shall not be backfilled for at least twenty four (24) hours after placing concrete except that pipe may be covered to a depth of not to exceed sixteen (16) inches over the top of the pipe.

3.3 JOINTING

- A. Polyvinyl Chloride (PVC) Pipe
 - 1. Dust, dirt and foreign matter shall be removed from joint surfaces. When jointing pipe using the required compression type joint, a lubricant recommended by the gasket manufacturer shall be used. The gasket shall be lubricated by drawing it through lubricant held in the hand of the worker, thus coating the entire surface of the gasket.
 - 2. When laying the pipe in concrete bedding, care shall be exercised to prevent the joint materials from coming in contact with the fresh concrete until after the joint has been completed.

3.4 PERMISSIBLE DEFLECTION AT JOINTS

- A. No pipe deflections or springing of joints, to effect a change in direction will be allowed, except by permission or direction of the Engineer, or as shown on the Drawings. Any permitted or directed deflection shall be a maximum of 80 percent of the allowable deflection value established by the pipe manufacturer.

3.5 MANHOLES

- A. Build each manhole to dimensions shown on Drawings and at such elevation that pipe sections built into wall of manhole will be true extensions of line of pipe.
- B. Set frames for manholes, within areas to be paved, to final grade. In asphalt pavement, surround frames set to grade with a ring of compacted asphalt concrete base material immediately after backfilling operations are complete. Place asphalt concrete mixture up to one (1) inch below top of frame, slope to grade, and compact with hand tamp.
- C. Storm manholes shall be constructed of precast concrete manhole sections, concrete masonry block, or concrete brick.
- D. Precast Concrete Manholes
 1. Precast bases shall be placed on a bed of crushed gravel or crushed limestone, meeting AASHTO M 43 gradation, having a minimum thickness of three (3) inches. The bedding shall be compacted and provide uniform support for the entire area of the base.
 2. Provision shall be made for a minimum of four (4) inches and a maximum of twelve (12) inches of precast concrete grade rings between the uppermost precast section and the bottom of the cast iron manhole frame in order to set manhole cover to grade.
 3. No more than two lifting holes or other lifting devices shall be utilized for handling the precast sections. All lifting holes shall be acceptably sealed with a hydraulic cement based, fast setting repair mortar, meeting the requirements of Article 2.2 of this Section, prior to backfilling around the manhole.
 4. Inverts shall be formed to the equivalent of half-pipes in concrete and as follows:
 - a. Carry concrete out to the manhole wall with a slope of $\frac{1}{2}$ in./ft. from the top of the half-pipe.
 - b. The bottoms of all manholes shall be channeled to conduct flow in the planned direction. Channels shall be the true shape of the lower half of the sewer pipe and shall match inverts of connecting pipe at the manhole wall.

3.6 INLETS AND CATCH BASINS

- A. Catch basins and inlets shall be built in accordance with the Drawings. Precast units shall be placed on a sand bed having a minimum thickness of three (3) inches.

The bedding shall be compacted and provide uniform support for the entire area of the base.

- B. Set frames for catch basins and inlets, within areas to be paved, to final grade. Surround frames set to grade with a ring of compacted asphalt concrete base material immediately after backfilling operations are complete. Place asphalt concrete mixture up to one (1) inch below top of frame, slope to grade, and compact with hand tamp.
- C. For H-25 load rated PVC inlets, a minimum 10 inch thick Class C concrete ring shall be poured under the grate as shown on the Drawings. Regardless of loading condition, no brick, stone, or concrete block shall be used to adjust inlets or catch basin grates or covers to final grade.

3.7 BRANCH CONNECTIONS

- A. In general, provision shall be made in the sewers for service connections by inserting a wye branch in the sewer at the location shown on the Drawings, where required or ordered, for each service connection with a branch size called for by the Drawings but never less than six (6) inch, for sewers ten (10) feet or less in depth. Where indicated on the plans, the Contractor shall construct a riser, as per detail, in such manner, that the top of the riser shall be not less than seven (7) feet below grade or at such elevation as to properly receive the required service connection, with full regard to elevation of service sewer and slope from building or structure to the sewer which shall not be less than one percent (1%).
- B. The approximate location of service connections are shown on the Drawings based upon available information. The Owner may increase the number of connections or delete some connections as the sewer is being built.
- C. Openings at the outer ends of the connections shall be closed and sealed with approved stoppers when connection is not immediately placed into service.

3.8 MAINTAINING FLOW

- A. The Contractor shall be required to maintain the flow in all existing live sewers during construction and the method employed shall be approved by the Engineer.

3.9 REPLACING, MOVING AND REPAIRING OF EXISTING UTILITIES

- A. The Contractor shall replace, move, support, or repair and maintain all pipes for water, steam, air or gas, and all wire conduit(s), and all other structures encountered in the work and repair all damage done to any of the said structures and appurtenances through his acts or neglect and shall keep them in repair during the life of the Contract. The Contractor shall in all cases leave them in as good condition as they were previous to the commencement of the work and to the full satisfaction of the Owner.

3.10 CONNECTION TO EXISTING SEWER SYSTEM

- A. The Contractor shall make connections to the existing sewer system as shown on the Drawings. The connections shall be made by the Contractor at such hours that will cause the least disturbance to the flow in the existing sewer system. The Contractor, however, shall notify the Engineer at least five working days in advance of the time he desires to make the connections and no such connections shall be made until the permission of the Engineer is obtained.

3.11 CLEAN-UP

- A. Before final acceptance for the Work, the Contractor shall clear the sewers of any mortar, dirt or other refuse that may have been left or accumulated in the sewers. All manholes and other structures shall be cleared of all forms, scaffolding, bulkheads, centering, surplus mortar, rubbish or dirt and left in a clean and proper condition.

3.12 DEFECTS TO BE MADE GOOD

- A. If, at any time before the completion of the contract, any broken pipes, or any defects, are found in the storm sewers or in any of their appurtenances, the Contractor shall cause the same to be removed and replaced by proper material and workmanship, without extra compensation for the labor and material required. All materials shall be carefully examined by the Contractor for defects before placing and any found defective shall not be placed in the line.

END OF SECTION 334100

SECTION 6
STANDARD SPECIFICATIONS

STANDARD SPECIFICATIONS

1. The "Construction and Material Specifications" of the State of Ohio Department of Transportation (ODOT), 2023 edition, current ODOT supplemental specifications, and current ODOT standard drawings shall govern work and materials which are not specified or modified herein or on the project Contract Drawings. All references to "the Department" shall be changed to "the Owner or his Representative." The project Contract Drawings and Specifications, in the event of a discrepancy, shall supersede the ODOT Specifications.

The absence of an "As Per Plan" designation on some item descriptions in the proposal for which there are clear and controlling plan notes, specifications, or other requirements does not relieve the Contractor of the responsibility to read, bid and construct those particular items in accordance with the governing plan notes, specifications, or other requirements and the Contractor shall have no basis of claim based upon an "order of precedence".

ODOT 104.02 D., 611.04, 611.12, and 611.13 shall not apply to this project.

SECTION 7
SPECIFIC PROJECT REQUIREMENTS

SPECIFIC PROJECT REQUIREMENTS

1 - CONTACT DURING BIDDING

- 1.1 All questions during bidding should be addressed to Maya Griswold, at Verdantas, LLC, 904 Sahara Trail, Suite 2, Youngstown, Ohio 44514, at (330)-272-9332.

2 - PERIODIC PAYMENTS

- 2.1 This project is expected to be funded in whole or in part by the OPWC. The Contractor shall comply with all requirements of this program. The periodic payments to the Contractor may be made in whole or in part through the OWNER and/or OPWC. In paragraph 14.02 C.1 of the General Conditions change "ten days" to "sixty days."

3 - TEST BORING REPORT

- 3.1 A Test Boring Report dated 9/19/23 by CT Consultants, Inc. was relied upon by the Engineer in the preparation of drawings and specifications. Copies of the report are provided along with each bid set but are not considered to be part of the contract documents.

4 - PAVEMENT CORING REPORT

- 4.1 A Pavement Coring Report dated February 13, 2026 by Verdantas LLC was relied upon by the Engineer in the preparation of drawings and specifications. Copies of the report are provided along with each bid set but are not considered to be part of the bid documents.

5 - CORRECTION PERIOD

- 5.1 The Correction Period in Section 13.07 of the General Conditions shall be changed from a one (1) year to a two (2) year period.

6 - INSURANCE

- 6.1 Section SC-5.04(D) of the Supplementary Conditions shall be deleted and no "all risk builders risk" or "installation floater" insurance need be purchased by the Contractor.
- 6.2 See the following Bid Set Sections for Insurance Requirements:
 - A. Section 1, Instructions to Bidders, Part 10 Insurance
 - B. Section 3, General Conditions, Article 5 Bonds and Insurance (EJCDC) or Article 11 Insurance and Bonds (AIA), whichever is used in the Bid Set
 - C. Section 4, Supplemental Conditions

7 - WORKING HOURS

- 7.1 No work shall be performed between the hours of 7:00 p.m. and 8:00 a.m. nor on Saturday, Sunday, or legal Holidays, without written permission of the Owner.

8 - PROJECT COMPLETION

- 8.1 All work including restoration and clean-up shall be completed no later than the contract completion date. Failure to complete all work within the allotted time will result in assessment of liquidated damages. Upon completion of all work and written notification of same by the Contractor, the Engineer and Owner will compile a punch list. The punch list will be sent to the Contractor. All punch list work shall be completed to the satisfaction of the Engineer and the Owner within 14 days after receipt of the punch list. Failure to complete the punch list work within the allotted time will result in assessment of liquidated damages.

END OF SECTION

SECTION 8
PREVAILING WAGE RATES

PREVAILING WAGES

The Contractor agrees that each individual employed by the Contractor or any Subcontractor and engaged in work on the project under this Contract shall be paid the prevailing wage established by the Ohio Department of Commerce Division of Industrial Compliance (<https://com.ohio.gov/divisions-and-programs/industrial-compliance/wage-and-hour/guides-and-resources/view-prevailing-wage-rates>). This shall occur regardless of any contractual relationship which may be said to exist between the Contractor or any Subcontractor and such individual.

The Prevailing Wage Determination Schedule for this project is attached. If the Contractor needs a wage determination for any trade not included herein, he shall contact the Owner's Prevailing Wage Coordinator.

Prevailing Wage Orientation Meeting

After award of contract the prime contractor and all approved subcontractors shall participate in a prevailing wage orientation meeting.

Prevailing Wage No Work Performed Report

The Prime Contractor and all Subcontractors shall submit Prevailing Wage Reports weekly from the first week of work until the final week of work. This includes weeks when no work is performed. Contractors shall submit a Prevailing Wage Report or the included Non-Performing Week/No Work Report. All prevailing wage reports submitted must be signed.

Prevailing Wage Determination Cover Letter

THE FOLLOWING PAGES ARE PREVAILING RATES OF WAGES ON PUBLIC IMPROVEMENTS FAIRLY ESTIMATED TO BE MORE THAN THE AMOUNT IN O.R.C. SEC. 4115.03 (b) (1) or (2), AS APPLICABLE.

Section 4115.05 provides, in part: "Where contracts are not awarded or construction undertaken within ninety days from the date of the establishment of the prevailing wages, there shall be a redetermination of the prevailing rate of wages before the contract is awarded." The expiration date of this wage schedule is listed above for your convenience only. This wage determination is not intended as a blanket determination to be used for all projects during this period without prior approval of this Department.

Section 4115.04, Ohio Revised Code provides, in part: "Such schedule of wages shall be attached to and made a part of the specifications for the work, and shall be printed on the bidding blanks where the work is done by contract..."

The contract between the letting authority and the successful bidder shall contain a statement requiring that mechanics and laborers be paid a prevailing rate of wage as required in Section 4115.06, Ohio Revised Code.

The contractor or subcontractor is required to file with the contracting public authority upon completion of the project and prior to final payment therefore an affidavit stating that he has fully complied with Chapter 4115 of the Ohio Revised Code.

The wage rates contained in this schedule are the "Prevailing Wages" as defined by Section 4115.03, Ohio Revised Code (the basic hourly rates plus certain fringe benefits). These rates and fringes shall be a minimum to be paid under a contract regulated by Chapter 4115 of the Ohio Revised Code by contractors and subcontractors. The prevailing wage rates contained in this schedule include the effective dates and wage rates currently on file. In cases where future effective dates are not included in this schedule, modifications to the wage schedule will be furnished to the Prevailing Wage Coordinator appointed by the public authority as soon as prevailing wage rates increases are received by this office.

"There shall be posted in a prominent and accessible place on the site of work a legible statement of the Schedule of Wage Rates specified in the contract to the various classifications of laborers, workmen, and mechanics employed, said statement to remain posted during the life of such contract." Section 4115.07, Ohio Revised Code.

Apprentices will be permitted to work only under a bona fide apprenticeship program if such program exists and if such program is registered with the Ohio Apprenticeship Council.

Section 4115.071 provides that no later than ten days before the first payment of wages is due to any employee of any contractor or subcontractor working on a contract regulated by Chapter 4115, Ohio Revised Code, the contracting public authority shall appoint one of his own employees to act as the prevailing wage coordinator for said contract. The duties of the prevailing wage coordinator are outlined in Section 4115.071 of the Ohio Revised Code.

Section 4115.05 provides for an escalator in the prevailing wage rate. Each time a new rate is established, that rate is required to be paid on all ongoing public improvement projects.

A further requirement of Section 4115.05 of the Ohio Revised Code is: "On the occasion of the first pay date under a contract, the contractor shall furnish each employee not covered by a collective bargaining agreement or understanding between employers and bona fide organizations of Labor with individual written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the prevailing wage Coordinator appointed by the public authority. The contractor or subcontractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed."

Work performed in connection with the installation of modular furniture may be subject to prevailing wage.

THIS PACKET IS NOT TO BE SEPARATED BUT IS TO REMAIN COMPLETE AS IT IS SUBMITTED TO YOU. (Reference guidelines and forms are included in this packet to be helpful in the compliance of the Prevailing Wage law.)

PREVAILING WAGE THRESHOLD LEVELS IMPORTANT NOTICE

Before advertising for bids, contracting, or undertaking construction with its own forces, to construct a public improvement, the Public Authority shall have the Ohio Department of Commerce-Division of Industrial Compliance, Bureau of Wage and Hour Administration determine the prevailing rates of wages for workers employed on the public improvement. The wage determination must be included in the project specifications and printed on the bidding blanks where work is done by contract.

“New” construction threshold for Building Construction:	\$250,000
--	------------------

“Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting” threshold level for Building Construction:	\$75,000
--	-----------------


As of January 1, 2026:

“New” construction that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction threshold level has been adjusted to:	\$101,201
--	------------------

“Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting” that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction threshold level has been adjusted to:	\$30,320
--	-----------------

- A) Thresholds are to be adjusted biennially by the Director of the Ohio Department of Commerce.
- B) Biennial adjustments to threshold levels are made according to the Building Cost for Skilled Labor Index published by McGraw-Hill’s Engineering News-Record, but may not increase or decrease more than 3% for any year.

If there are questions concerning this notification, please contact:
 Bureau of Wage and Hour Administration
 6606 Tussing Road, PO Box 4009
 Reynoldsburg, Ohio 43068-9009
 Phone: 614-644-2239
 Fax: 614-728-8639
www.com.ohio.gov

 Help us improve our website! Take a brief [1–2 minute survey](#) to share your experience using the Ohio Department of Commerce website.

Prevailing Wage Contractor Responsibilities



This is a summary of prevailing wage contractors' responsibilities. For more detailed information please refer to [Chapter 4115 of the Ohio Revised Code](#)

[Collapse All Sections](#)

General Information



Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds when the total overall project cost is fairly estimated to be more than \$250,000 for new construction or \$75,000 for reconstruction, enlargement, alteration, repair, remodeling, renovation, or

painting.

Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds when the total overall project cost is fairly estimated to be more than \$98,974 for new construction that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction or \$29,653 for reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting of a public improvement that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction.

a. Thresholds are to be adjusted biennially by the Administrator of Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration

b. Biennial adjustments to threshold levels are made according to the Price Deflator for Construction Index, United States Department of Commerce, Bureau of the Census*, but may not increase or decrease more than 3% for any year

Penalties for violation



Violators are to be assessed the wages owed, plus a penalty of 100% of the wages owed.

Intentional Violations



If an intentional violation is determined to have occurred, the contractor is prohibited from contracting directly or indirectly with any public authority for the construction of a public improvement. Intentional violation means "a willful, knowing, or deliberate disregard for any provision" of the prevailing wage law and includes but is not limited to the following actions:

- Intentional failure to submit payroll reports as required, or knowingly submitting false or erroneous reports.
- Intentional misclassification of employees for the purpose of reducing wages.
- Intentional misclassification of employees as independent contractors or as apprentices.
- Intentional failure to pay the prevailing wage.
- Intentional failure to comply with the allowable ratio of apprentices to skilled workers as required by the regulations established by Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration.

- Intentionally employing an officer, of a contractor or subcontractor, that is known to be prohibited from contracting, directly or indirectly, with a public authority.

Responsibilities



A. Pay the prevailing rate of wages as shown in the wage rate schedules issued by the Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration, for the classification of work being performed.

1. Wage rate schedules include all modifications, corrections, escalations, or reductions to wage rates issued for the project.
2. Overtime must be paid at time and one-half the employee's base hourly rate. Fringe benefits are paid at straight time rate for all hours including overtime.
3. Prevailing wages must be paid in full without any deduction for food, lodging, transportation, use of tools, etc.; unless, the employee has voluntarily consented to these deductions in writing. The public authority and the Director of Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration - must approve these deductions as fair and reasonable. Consent and approval must be obtained before starting the project.

B. Use of Apprentices and Helpers cannot exceed the ratios permitted in the wage rate schedules.

1. Apprentices must be registered with the U.S. Department of Labor Bureau of Apprenticeship and Training.
2. Contractors must provide the Prevailing Wage Coordinator a copy of the Apprenticeship Agreement for each apprentice on the project.

C. Keep full and accurate payroll records available for inspection by any authorized representative of the Ohio Department of Commerce, Division of Industrial Compliance, and Labor, Bureau of Wage and Hour Administration or the contracting public authority, including the Prevailing Wage Coordinator. Records should include but are not limited to:

1. Time cards, time sheets, daily work records, etc.
2. Payroll ledger\journals and canceled checks\check register.
3. Fringe benefit records must include program, address, account number, & canceled checks.

4. Records made in connection with the public improvement must not be removed from the State for one year following the completion of the project.

5. Out-of-State Corporations must submit to the Ohio Secretary of State the full name and address of their Statutory Agent in Ohio.

D. Prevailing Wage Rate Schedule must be posted on the job site where it is accessible to all employees.

E. Prior to submitting the initial payroll report, supply the Prevailing Wage Coordinator with your project dates to schedule reporting of your payrolls.

F. Supply the Prevailing Wage Coordinator a list of all subcontractors including the name, address, and telephone number for each.

1. Contractors are responsible for their subcontractors' compliance with requirements of Chapter 4115 of the Ohio Revised Code.

G. Before employees start work on the project, supply them with written notification of their job classification, prevailing wage rate, fringe benefit amounts, and the name of the Prevailing Wage Coordinator for the project. A copy of the completed signed notification should be submitted to Prevailing Wage Coordinator.

H. Supply all subcontractors with the Prevailing Wage Rates and changes.

I. Submit certified payrolls within two (2) weeks after the initial pay period. Payrolls must include the following information:

1. Employees' names, addresses, and social security numbers.

a. Corporate officers/owners/partners and any salaried personnel who do physical work on the project are considered employees. All rate and reporting requirements are applicable to these individuals.

2. Employees' work classification.

a. Be specific about the laborers and/or operators (Group)

b. For all apprentices, show level/year and percent of journeyman's rate

3. Hours worked on the project for each employee.

a. The number of hours worked in each day and the total number of hours worked each week.

4. Hourly rate for each employee.

a. The minimum rate paid must be the wage rate for the appropriate classification. The Department's Wage Rate Schedule sets this rate.

b. All overtime worked is to be paid at time and one-half for all hours worked more than forty (40) per week.

5. Where fringes are paid into a bona fide plan instead of cash, list each benefit and amount per hour paid to program for each employee.

a. When the amount contributed to the fringe benefit plan and the total number of hours worked by the employee on all projects for the year are documented, the hourly amount is calculated by dividing the total contribution of the employer by the total number of hours worked by the employee.

b. When the amount contributed to the fringe benefit is documented but not the total hours worked, the hourly amount is calculated by dividing the total yearly contribution by 2080.

6. Gross amount earned on all projects during the pay period.

7. Total deductions from employee's wages.

8. Net amount paid.

J. The reports shall be certified by the contractor, subcontractor, or duly appointed agent stating that the payroll is correct and complete; and that the wage rates shown are not less than those required by the O.R.C. 4115.

K. Provide a Final Affidavit to the Prevailing Wage Coordinator upon the completion of the project.

INSTRUCTIONS FOR PREPARING CERTIFIED PAYROLL REPORTS

General:

Contractors and subcontractors are required by law to submit certified payroll reports for work on projects covered by Ohio's Prevailing Wage Law. This form meets the reporting requirements established by Ohio Revised Code Chapter 4115. The use of this form is not mandatory; employers may submit their own forms if all of the required information is included. This form may be reproduced, or additional copies obtained from:

Ohio Department of Commerce
Division of Industrial Compliance
Bureau of Wage and Hour Administration
6606 Tussing Road, P.O. Box 4009
Reynoldsburg, Ohio 43068-9009
614-644-2239
www.com.ohio.gov

Certified Payroll Heading:

Employer name and address: Company's full name and address...Indicate if the company is a subcontractor.

Subcontractor: Check and list the name of the General Contractor or Prime.

Project: Name and location of the project, including county.

Contracting Public Authority: Name and address of the contracting public authority... (Owner of the project).

Week Ending: Month, day, and year for last day of reporting period.

Payroll #: Indicates first, second, third, etc. payroll filed by the company for the project.

Page indicator: number of pages included in the report.

Project Number: Determined by the public authority...If there is no number leave blank.

Payroll Information by column:

- Employee Name, Address and Social Security number: This information must be provided for all employees that perform physical labor on the project. The Social Security number is required; the last four digits may be permitted by the public authority. Corporate officers, partners, and salaried employees are considered employees and must be paid the prevailing rate. Individual sole proprietors do not have to pay themselves prevailing rate but must report their hours on the project.
- Work Class: List classification of work performed by employee. If unsure of work classification, consult the Ohio Department of Commerce-Division of Industrial Compliance & Labor-Bureau of Wage and Hour Administration. Employees working more than one classification should have separate line entries for each classification. Indicate what year/level for Apprentices. Be specific when using laborer and operator classifications; for example, Backhoe Operator or Asphalt Laborer or by "Group".
- Hours Worked, Day & Date: In the first row of column 3, enter days of the company's pay period for example; M T W TH F S S. The second row is for the date that corresponds with each day for the pay period. In the employee information section, enter the number of hours worked on the prevailing wage project and which day the hours were worked. Separate rows are labeled for (ST) straight time hours and (OT) overtime hours. All hours worked after 40, must be paid at the appropriate overtime rate.
- Project Total Hours: Total the hours entered for pay period.
- Base Rate: Enter actual rate per hour paid to the employee. The overtime hourly rate is time and one-half the base rate listed in the prevailing wage schedule plus fringe benefits at straight time rate. The prevailing wage schedule lists the base rate plus fringe benefit amounts. These amounts added together equal the total prevailing wage rate. Employers must pay this total amount in one of three ways.
 - Total rate may be paid in entirety in the base rate to the employee; in which case, the cash designation will be checked for fringe benefits.
 - Total rate may be paid as listed in prevailing wage rate schedule with total fringe amounts paid approved plans.
 - Total rate may be paid with a combination of base rate and fringe payments to approved plans in amounts other than those listed in schedule.
- Project Gross: Enter total gross wages earned on the project for straight time and overtime. Project hours "X" base rate should equal project gross.
- Fringes: If fringe benefits are paid in the hourly base rate, indicate this by marking the **Cash** space. If fringe benefits are paid to approved plans as listed in the prevailing wage rate schedule, mark the space **Approved Plans**. If fringe benefits are paid partially in the base rate and partially to approved plans, mark the space **Cash & Approved Plans**. List the hourly amount paid to approved plans for each fringe. If payments are not made on a per hour basis, **calculate the hourly fringe credit by dividing the yearly employer contribution by** the lesser of: hours actually worked in the year (these must be documented) or **2080**. Fringe benefits include: **Employer's share** of health insurance, life insurance, retirement plan, bonus/profit sharing, sick pay, holiday pay, personal leave, vacation, and education/training programs. If unsure of a possible fringe benefit, contact the Ohio Department of Commerce-Division of Industrial Compliance & Labor-Bureau of Wage and Hour Administration.
- Total Hours All Jobs: Total all hours worked during the pay period including non-prevailing wage jobs.
- Total Gross All Jobs: Gross amount earned in the pay period for all hours worked.
- Self-explanatory.
- Self-explanatory.

Certified Payroll Report

Report for: _____ Payroll No: _____
 Company:¹⁾ _____ Contract No: _____
 Address: _____ If Sub, GC/Prime Contractor Name: _____ Project Name & Location: _____
 City, State, Zip _____ Public Authority (Owner): _____ Week Ending: _____
 Phone No: _____ Sheet:²⁾ _____ of _____

1. Employee Name, Address, & SS# (Last 4 digits if permitted)	2. Work Class ³⁾	3. Prevailing Wage Project		4. Total Hours	5. Base Rate	6. Project Gross	Fringes:				Weekly Payroll Amount						
		Hours Worked - Day & Date					H&W	Pens	Vac	Hol	Other	8. Total Hrs for all Jobs	9. Total Gross on All Jobs	10. Total Deductions	11. Net Pay on All Jobs		
																Cash	Approved Plans
	OT																
	ST																
	OT																
	ST																
	OT																
	ST																
	OT																
	ST																

1) By signing below, I certify that: (1) I pay, or supervise the payment of the employees shown above; (2) during the pay period reported on this form, all hours worked on this project have been paid at the appropriate prevailing wage rate for the class of work done; (3) the fringe benefits have been paid as indicated above; (4) no rebates or deductions have been or will be made, directly or indirectly from the total wages earned, other than permissible deductions as defined in ORC Chapter 4115; and (5) apprentices are registered with the U.S. Dept. of Labor, Bureau of Apprenticeship and Training. I understand that the willful falsification of any of the above statements may subject the Contractor or Subcontractor to civil or criminal prosecution.

Type or Print Name and Title _____ Signature _____ Date _____

²⁾ Attach additional sheets as necessary. ³⁾ Type in continuous line, text will wrap.

Prevailing Wage Notification to Employee

4115.05: ...the contractor or subcontractor shall furnish each employee **NOT covered by a collective bargaining agreement** written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the prevailing wage coordinator appointed by the public authority. The contractor or subcontractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed.

Project Name:	Project Number:
Contractor:	
Project Location:	

Prevailing Wage Coordinator	Employee
Public Authority:	Name:
Name of PWC:	Street:
Street:	City:
City:	State/Zip:
State:	Phone Number:
Zip:	Email:
Phone:	Last 4 Digits of SS#:

You will be performing work on this project that falls under these classifications. You will be paid the appropriate rate for the type of work you are performing.

Classification:	Prevailing Wage Rate Total Package:	Minus your fringe benefits*:	Your hourly base rate and overtime:
			/
			/
			/
			/
			/
			/

Hourly fringe benefits paid on your behalf by this company (Yearly amount the **company pays** divided by 2080):

Fringe	Amount	Fringe	Amount
Health Insurance		Vacation	
Life Pension		Holiday	
Pension		Sick Pay	
Other (Specify):		Training	
Other (Specify):		Total Hourly Fringes *	

Contractor's Signature:	Date:
Employee's Signature:	Date:

Certified payroll Report for Non-Performing Week

Owner:

Project:

Prime Contractor:

Subcontractor (if subcontractor report):

For week beginning on:

For week ending on:

Payroll Number:

Project Number:

CERTIFICATION FOR NON-PERFORMING WEEK

I, _____ (*Name of PWC*), the undersigned, am the Prevailing Wage Coordinator with the authority to act for and on behalf of _____ (*Company Name*), do hereby certify under penalty of perjury that no work was performed for the week referenced above.

Signature

Name, Prevailing Wage Coordinator

Select a County: Mahoning

DOWNLOAD (PDF)

<input type="checkbox"/> Union ↑	Classification	Wage Rate Type	Effective Date	Posted Date	
<input type="checkbox"/> Asbestos Local 207	Asbestos Worker	Commercial	08/06/2025	08/06/2025	View
<input type="checkbox"/> Asbestos Local 84 Heat & Frost Insulators	Asbestos Worker	Commercial	06/04/2025	06/04/2025	View
<input type="checkbox"/> Boilermaker Local 744	Boilermaker	Commercial	06/05/2024	06/05/2024	View
<input type="checkbox"/> Bricklayer Local 23 (Youngstown Zone 1 Tile Finisher)	Bricklayer	Commercial	09/17/2025	09/17/2025	View
<input type="checkbox"/> Bricklayer Local 23 (Youngstown Zone 1 Tile Worker)	Bricklayer	Commercial	06/01/2025	05/28/2025	View
<input type="checkbox"/> Bricklayer Local 23 (Youngstown)	Bricklayer	Commercial	06/01/2025	05/28/2025	View
<input type="checkbox"/> Bricklayer Local 23 Heavy Hwy (A)	Bricklayer	Commercial	03/25/2026	03/25/2026	View
<input type="checkbox"/> Bricklayer Local 23 Heavy Hwy (B)	Bricklayer	Commercial	03/25/2026	03/25/2026	View
<input type="checkbox"/> Carpenter Commercial Zone NEO 3	Carpenter	Commercial	06/18/2025	06/18/2025	View
<input type="checkbox"/> Carpenter Floorlayer Zone NEO 3	Carpenter	Commercial	06/18/2025	06/18/2025	View
<input type="checkbox"/> Carpenter Hev Hwy Zone NHH C2-G	Carpenter	Commercial	06/18/2025	06/18/2025	View
<input type="checkbox"/> Carpenter Insulation Zone NEO 3	Carpenter	Commercial	06/18/2025	06/18/2025	View
<input type="checkbox"/> Carpenter Millwright NE Zone M1-D	Carpenter	Commercial	06/18/2025	06/18/2025	View
<input type="checkbox"/> Carpenter Pile Driver Hev Hwy Zone NHH P3-B	Carpenter	Commercial	06/18/2025	06/18/2025	View
<input type="checkbox"/> Cement Mason Local 179	Cement Mason	Commercial	06/21/2023	06/21/2023	View
<input type="checkbox"/> Cement Mason Local 526 Hev Hwy	Cement Mason	Commercial	05/01/2026	04/29/2026	View
<input type="checkbox"/> Electrical Local 71 High Tension Pipe Type Cable	Electrical	Commercial	01/07/2026	01/07/2026	View

Union ↑	Classification	Wage Rate Type	Effective Date	Posted Date	
<input type="checkbox"/> Electrical Local 71 Outside Mahoning Valley	Electrical	Commercial	06/04/2025	06/04/2025	View
<input type="checkbox"/> Electrical Local 71 Outside Utility Power	Electrical	Commercial	01/07/2026	01/07/2026	View
<input type="checkbox"/> Electrical Local 71 Underground Residential Distribution	Electrical	Commercial	01/07/2026	01/07/2026	View
<input type="checkbox"/> Electrical Local 71 Voice Data Video Outside	Electrical	Commercial	03/06/2024	03/06/2024	View
<input type="checkbox"/> Elevator Local 45	Elevator	Commercial	03/18/2026	03/18/2026	View
<input type="checkbox"/> Glazier Local 847	Glazier	Commercial	08/20/2025	08/20/2025	View
<input type="checkbox"/> Ironworker Local 207	Ironworker	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Labor HevHwy 2	Laborer	Commercial	05/01/2026	04/29/2026	View
<input type="checkbox"/> Labor Local 125 Building	Laborer	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Operating Engineers Local 66 Building & HevHwy	Operating Engineer	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Operating Engineers Local 66 Building & HevHwy Levels A & B Asbestos Abatement & Hazardous Waste	Operating Engineer	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Operating Engineers Local 66 Building & HevHwy Levels C & D Hazardous Waste	Operating Engineer	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Painter Local 476	Painter	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Painter Local 476 Bridge Painter & Hvy Hwy	Painter	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Painter Local 476 Drywall	Painter	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Painter Local 476 Industrial	Painter	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Painter Local 639 Sign and Display	Painter	Commercial	06/18/2025	06/18/2025	View
<input type="checkbox"/> Painter Local 639 Zone 2 Sign	Painter	Commercial	05/28/2025	05/28/2025	View
<input type="checkbox"/> Plasterer Local 179	Plasterer	Commercial	06/21/2023	06/21/2023	View
<input type="checkbox"/> Plasterer Local 179 Light Commercial EIFS	Plasterer	Commercial	06/21/2023	06/21/2023	View
<input type="checkbox"/> Plumber Pipefitter Local 396	Plumber Pipefitter	Commercial	06/01/2026	05/27/2026	View
<input type="checkbox"/> Roofer Local 71	Roofer	Commercial	05/21/2025	05/21/2025	View
<input type="checkbox"/> Sheet Metal Local 33 (Youngstown)	Sheet Metal Worker	Commercial	06/02/2025	05/28/2025	View
<input type="checkbox"/> Sheet Metal Local 33 Industrial Door	Sheet Metal Worker	Commercial	08/01/2025	07/30/2025	View
<input type="checkbox"/> Sprinkler Fitter Local 669	Sprinkler Fitter	Commercial	08/06/2025	08/06/2025	View
Truck Driver Locals					
<input type="checkbox"/> 20,40,92,100,175,284,348,377,637,697,908,957 - Bldg & HevHwy Class 1	Truck Driver	Commercial	05/01/2026	04/29/2026	View
Truck Driver Locals					
<input type="checkbox"/> 20,40,92,100,175,284,348,377,637,697,908,957 - Bldg & HevHwy Class 2	Truck Driver	Commercial	05/01/2026	04/29/2026	View

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Asbestos Local 207	LCN01-2025ib	Asbestos Worker	08/06/2025	08/06/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Asbestos Abatement	\$32.50	\$10.95	\$7.25	\$0.75	\$3.75	\$0.00	\$0.05	\$0.00	\$0.00	\$55.25	\$71.50
Trainee	Percent	BHR									
Trainee	67.690000	\$22.00	\$10.95	\$1.90	\$0.75	\$1.00	\$0.00	\$0.05	\$0.00	\$36.65	\$47.65

Special Calculation Note

Other: Drug Testing

Ratio

3 Journeymen to 1 Trainee

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula*, Athens, Auglaize, Brown, Butler*, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Erie*, Fairfield, Fayette, Franklin, Geauga, Greene, Guernsey, Hamilton, Hardin, Harrison, Highland, Hocking, Holmes, Huron, Knox, Lake, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Miami, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Portage, Preble, Richland, Ross, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren*, Wayne

Special Jurisdictional Note

Ashtabula County: (post offices & townships of Ashtabula, Austinburg, Geneva, Harperfield, Jefferson, Plymouth & Saybrook) (townships of Andover, Cherry Valley, Colbrook, Canneaut, Denmark, Dorset, East Orwell, Hartsgrove, Kingville, Lenox, Monroe, Morgan, New Lyme, North Kingsville, Orwell, Pierpoint, Richmond Rock Creek, Rome, Sheffield, Trumbull, Wayne, Williamsfield & Windsor)

Butler County: (townships of Fairfield, Hanover, Liberty, Milford, Morgan, Oxford, Ripley, Ross, St. Clair, Union & Wayne) (Lemon & Madison)

Erie County: (post offices & townships of Berlin, Berlin Heights, Birmingham, Florence, Huron, Milan, Shinrock & Vermilion)

Warren County: (townships of: Deerfield, Hamilton, Harlan, Salem, Union & Washington) (Clear Creek, Franklin, Mossie, Turtle Creek & Wayne)

Details

An Abatement Journeyman is anyone who has more than 600 hours in the Asbestos Abatement field.

Asbestos & lead paint abatement including, but not limited to the removal or encapsulation of asbestos & lead paint, all work in conjunction with the preparation of the removal of same & all work in conjunction with the clean up after said removal. The removal of all insulation materials, whether they contain asbestos or not, from mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) is recognized as being the exclusive work of the Asbestos Abatement Workers.

On all mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) that are going to be demolished, the removal of all insulating materials whether they contain asbestos or not shall be the exclusive work of the Laborers.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Asbestos Local 84 Heat & Frost Insulators	LCN01-2025ib	Asbestos Worker	06/04/2025	06/04/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Asbestos Insulation Worker	\$39.02	\$8.65	\$10.00	\$0.46	\$0.00	\$7.24	\$0.00	\$0.00	\$0.00	\$65.37	\$84.88
Apprentice	Percent	BHR									
1st Year	60.000000	\$23.41	\$8.65	\$6.00	\$0.46	\$0.00	\$5.08	\$0.00	\$0.00	\$43.60	\$55.31
2nd Year	65.000000	\$25.36	\$8.65	\$6.50	\$0.46	\$0.00	\$5.35	\$0.00	\$0.00	\$46.32	\$59.00
3rd Year	75.020000	\$29.27	\$8.65	\$7.50	\$0.46	\$0.00	\$5.89	\$0.00	\$0.00	\$51.77	\$66.41
4th Year	85.000000	\$33.17	\$8.65	\$8.50	\$0.46	\$0.00	\$6.43	\$0.00	\$0.00	\$57.21	\$73.79

Special Calculation Note

Other is Industry and Labor Management Fund

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashland, Ashtabula*, Carroll, Columbiana, Coshocton, Harrison, Holmes, Mahoning, Medina, Portage, Richland, Stark, Summit, Trumbull, Tuscarawas, Wayne

Special Jurisdictional Note

Ashtabula County: except for the townships of Ashtabula, Austinburg, Geneva, Harpersfield, Jefferson, Plymouth and Saybrook.

Details

The removal of all insulation materials, whether they contain asbestos or not, from mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) is recognized as being the exclusive work of the Asbestos Workers. On all mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) that are going to be demolished, the removal of all insulating materials whether they contain asbestos or not shall be the exclusive work of the Laborers.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Boilermaker Local 744	LCN01-2024ib	Boilermaker	06/05/2024	06/05/2024

Wage Rates

		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Classification	BHR											
Boilermaker	\$42.70	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$78.19	\$99.54	
Apprentice	Percent	BHR										
1st 6 months	70.000000	\$29.89	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$65.38	\$80.33
2nd 6 months	72.500000	\$30.96	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$66.45	\$81.93
3rd 6 months	75.000000	\$32.03	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$67.52	\$83.53
4th 6 months	77.500000	\$33.09	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$68.58	\$85.13
5th 6 months	80.000000	\$34.16	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$69.65	\$86.73
6th 6 months	85.000000	\$36.30	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$71.79	\$89.93
7th 6 months	90.000000	\$38.43	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$73.92	\$93.14
8th 6 months	95.000000	\$40.57	\$7.07	\$17.74	\$0.78	\$0.00	\$9.56	\$0.34	\$0.00	\$0.00	\$76.06	\$96.34

Special Calculation Note

Other: Training Fund

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Carroll, Coshocton, Cuyahoga, Geauga, Harrison, Holmes, Lake, Lorain, Mahoning, Medina, Portage, Stark, Summit, Trumbull, Tuscarawas, Wayne

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Youngstown Zone 1 Tile Finisher)	LCN02-2025sks	Bricklayer	09/17/2025	09/17/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Bricklayer Tile Marble Terrazzo Finisher	\$29.72	\$7.85	\$8.75	\$0.69	\$0.00	\$2.00	\$0.00	\$0.00	\$0.00	\$49.01	\$63.87
Wood Laminate Carpet Carpet Tile Finisher	\$22.57	\$7.85	\$2.85	\$0.34	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.61	\$44.90
Apprentice	Percent	BHR									
1st 30 days	60.000000	\$17.83	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$17.83	\$26.74
30 days-6 months	60.000000	\$17.83	\$7.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.68	\$34.59
2nd 6 months	70.000000	\$20.80	\$7.85	\$8.75	\$0.69	\$0.00	\$2.00	\$0.00	\$0.00	\$40.09	\$50.49
3rd 6 months	75.000000	\$22.29	\$7.85	\$8.75	\$0.69	\$0.00	\$2.00	\$0.00	\$0.00	\$41.58	\$52.73
4th 6 months	80.000000	\$23.78	\$7.85	\$8.75	\$0.69	\$0.00	\$2.00	\$0.00	\$0.00	\$43.07	\$54.96
5th 6 months	85.000000	\$25.26	\$7.85	\$8.75	\$0.69	\$0.00	\$2.00	\$0.00	\$0.00	\$44.55	\$57.18
6th 6 months	90.000000	\$26.75	\$7.85	\$8.75	\$0.69	\$0.00	\$2.00	\$0.00	\$0.00	\$46.04	\$59.42

Special Calculation Note

Ratio

4 Journeymen to 1 Apprentice
 6 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Youngstown Zone 1 Tile Worker)	LCN01-2025ib	Bricklayer	06/01/2025	05/28/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Bricklayer Tile Marble Terrazzo Worker	\$32.56	\$7.85	\$8.75	\$0.72	\$0.00	\$2.00	\$0.00	\$0.00	\$0.00	\$51.88	\$68.16
Wood Laminate Carpet Carpet Tile	\$25.18	\$7.85	\$2.85	\$0.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.24	\$48.83
APPRENTICE WOOD, LAMINATE, CARPET, CARPET TILE 1st 30 days	\$15.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15.11	\$22.67
30 Days- 6 months	\$15.11	\$7.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.96	\$30.52
2nd 6 months	\$17.63	\$7.85	\$2.85	\$0.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.69	\$37.51
3rd 6 months	\$18.89	\$7.85	\$2.85	\$0.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.95	\$39.40
4th 6 months	\$20.14	\$7.85	\$2.85	\$0.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.20	\$41.27
5th 6 months	\$21.40	\$7.85	\$2.85	\$0.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.46	\$43.16
6th 6 months	\$22.66	\$7.85	\$2.85	\$0.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.72	\$45.05
7th 6 months	\$23.92	\$7.85	\$2.85	\$0.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.98	\$46.94
8th 6 months	\$23.92	\$7.85	\$2.85	\$0.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.98	\$46.94
MASON TRAINEE 1-90 Days	\$19.54	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.54	\$29.31
90-365 Days	\$19.54	\$7.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.39	\$37.16
366+ Days	\$22.79	\$7.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.64	\$42.04
Apprentice	Percent	BHR									
1st 30 days	60.000000	\$19.54	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.54	\$29.30
30 days - 6 months	60.000000	\$19.54	\$7.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.39	\$37.15
2nd 6 months	70.000000	\$22.79	\$7.85	\$8.75	\$0.72	\$0.00	\$2.00	\$0.00	\$0.00	\$42.11	\$53.51
3rd 6 months	75.000000	\$24.42	\$7.85	\$8.75	\$0.72	\$0.00	\$2.00	\$0.00	\$0.00	\$43.74	\$55.95
4th 6 months	80.000000	\$26.05	\$7.85	\$8.75	\$0.72	\$0.00	\$2.00	\$0.00	\$0.00	\$45.37	\$58.39
5th 6 months	85.000000	\$27.68	\$7.85	\$8.75	\$0.72	\$0.00	\$2.00	\$0.00	\$0.00	\$47.00	\$60.83
6th 6 months	90.000000	\$29.30	\$7.85	\$8.75	\$0.72	\$0.00	\$2.00	\$0.00	\$0.00	\$48.62	\$63.28
7th 6 months	95.000000	\$30.93	\$7.85	\$8.75	\$0.72	\$0.00	\$2.00	\$0.00	\$0.00	\$50.25	\$65.72
8th 6 months	95.000000	\$30.93	\$7.85	\$8.75	\$0.72	\$0.00	\$2.00	\$0.00	\$0.00	\$50.25	\$65.72
MASONRY MAINTENANCE	60.000000	\$19.54	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.54	\$29.30

Special Calculation Note

Ratio
 4 Journeyman to 1 Apprentice 6 Journeyman to 1 Apprentice thereafter Mason Trainee Ratio 1 Apprentice permits 1 Mason Trainee 2 Apprentice permits 1 Mason Trainee 3 Apprentice permits 2 Mason Trainee 4 Apprentice permits 2 Mason Trainee MASON TRAINEE may work on job site only when a registered apprentice is on job and the ratios in above table will be strictly enforced.

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 (Youngstown)	LCN01-2025ib	Bricklayer	06/01/2025	05/28/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Bricklayer/ Stone Mason/ Pointers/ Cleaner/ Caulker/Marble Mason	\$34.48	\$10.12	\$10.55	\$0.79	\$0.00	\$2.70	\$0.00	\$0.00	\$0.00	\$58.64	\$75.88
Masonry Maintenance Specialist	\$18.96	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.96	\$28.44
Mason Trainees											
1-90 days	\$20.69	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.69	\$31.04
91-365 days	\$20.69	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.69	\$31.04
2nd year	\$24.14	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.14	\$36.21
Apprentice	Percent	BHR									
1st 6 months	60.000000	\$20.69	\$8.60	\$5.20	\$0.79	\$0.00	\$0.00	\$0.00	\$0.00	\$35.28	\$45.62
2nd 6 months	65.000000	\$22.41	\$8.60	\$5.20	\$0.79	\$0.00	\$0.00	\$0.00	\$0.00	\$37.00	\$48.21
3rd 6 months	70.000000	\$24.14	\$8.60	\$5.70	\$0.79	\$0.00	\$0.40	\$0.00	\$0.00	\$39.63	\$51.69
4th 6 months	75.000000	\$25.86	\$8.60	\$5.70	\$0.79	\$0.00	\$0.40	\$0.00	\$0.00	\$41.35	\$54.28
5th 6 months	80.000000	\$27.58	\$8.60	\$7.70	\$0.79	\$0.00	\$0.80	\$0.00	\$0.00	\$45.47	\$59.27
6th 6 months	85.000000	\$29.31	\$8.60	\$7.70	\$0.79	\$0.00	\$0.80	\$0.00	\$0.00	\$47.20	\$61.85
7th 6 months	90.000000	\$31.03	\$8.60	\$8.70	\$0.79	\$0.00	\$1.20	\$0.00	\$0.00	\$50.32	\$65.84
8th 6 months	95.000000	\$32.76	\$8.60	\$8.70	\$0.79	\$0.00	\$1.20	\$0.00	\$0.00	\$52.05	\$68.42

Special Calculation Note

No special calculations for this skilled craft wage rate are required at this time.

Ratio

4 Journeymen to 1 Apprentice 8 Journeymen to 2 Apprentice 12 Journeymen to 3 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Mahoning, Trumbull

Special Jurisdictional Note

Details

Masonry Maintenance Specialist* * * - in partnership with a local education organization employer may employ School to Work students providing said employee is a full time student and that no conflicts exist with any Federal or State Laws. Employer must be party to an apprentice program duly registered with the DOL and Ohio State Apprentice Compliance (OSAC).

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 Heavy Hwy (A)	LCN01-2026ib	Bricklayer	03/25/2026	03/25/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Cement Mason Bricklayer Sewer Water Works A	\$34.56	\$10.20	\$9.68	\$0.56	\$0.00	\$1.30	\$0.00	\$0.00	\$0.00	\$56.30	\$73.58
Apprentice	Percent	BHR									
1st year	70.000000	\$24.19	\$10.20	\$9.68	\$0.56	\$0.00	\$1.30	\$0.00	\$0.00	\$45.93	\$58.03
2nd year	80.000000	\$27.65	\$10.20	\$9.68	\$0.56	\$0.00	\$1.30	\$0.00	\$0.00	\$49.39	\$63.21
3rd year	90.000000	\$31.10	\$10.20	\$9.68	\$0.56	\$0.00	\$1.30	\$0.00	\$0.00	\$52.84	\$68.39

Special Calculation Note

This rate is not for building construction.

This rate applies only to the Cement Masons. All other Bricklaying, PCC, Stone, Tile, Marble, Refractory, Industrial and all other applicable work performed will be performed under the applicable rates for those contracts.

Ratio

- 3 Journeymen to 1 Apprentice
- 6 Journeymen to 2 Apprentice
- 9 Journeymen to 3 Apprentice
- 12 Journeymen to 4 Apprentice
- 15 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Bricklayer Local 23 Heavy Hwy (A): Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

Bricklayer Local 23 Heavy Hwy (B): Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control, Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Bricklayer Local 23 Heavy Hwy (B)	LCN01-2026ib	Bricklayer	03/25/2026	03/25/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Cement Mason Bricklayer Power Plants Tunnels Amusement Parks B	\$35.56	\$10.20	\$9.68	\$0.57	\$0.00	\$1.30	\$0.00	\$0.00	\$0.00	\$57.31	\$75.09
Apprentice	Percent	BHR									
1st year	70.000000	\$24.89	\$10.20	\$9.68	\$0.57	\$0.00	\$1.30	\$0.00	\$0.00	\$46.64	\$59.09
2nd year	80.000000	\$28.45	\$10.20	\$9.68	\$0.57	\$0.00	\$1.30	\$0.00	\$0.00	\$50.20	\$64.42
3rd year	90.000000	\$32.00	\$10.20	\$9.68	\$0.57	\$0.00	\$1.30	\$0.00	\$0.00	\$53.75	\$69.75

Special Calculation Note

This rate is not for building construction.

This rate applies only to the Cement Masons. All other Bricklaying, PCC, Stone, Tile, Marble, Refractory, Industrial and all other applicable work performed will be performed under the applicable rates for those contracts.

Ratio

- 3 Journeymen to 1 Apprentice
- 6 Journeymen to 2 Apprentice
- 9 Journeymen to 3 Apprentice
- 12 Journeymen to 4 Apprentice
- 15 Journeymen to 5 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Bricklayer Local 23 Heavy Hwy (A): Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

Bricklayer Local 23 Heavy Hwy (B): Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control, Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Commercial Zone NEO 3	LCN01-2025ib	Carpenter	06/18/2025	06/18/2025

Wage Rates

		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR										
Carpenter	\$32.79	\$8.98	\$10.68	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$0.00	\$57.67	\$74.07
Apprentice	Percent	BHR									
1st 3 months	60.000000	\$19.67	\$8.98	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.65	\$38.49
2nd 3 months	60.000000	\$19.67	\$8.98	\$0.00	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$33.87	\$43.71
2nd 6 months	65.000000	\$21.31	\$8.98	\$0.00	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$35.51	\$46.17
3rd 6 months	70.000000	\$22.95	\$8.98	\$0.00	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$37.15	\$48.63
4th 6 months is 2nd year	75.000000	\$24.59	\$8.98	\$0.00	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$38.79	\$51.09
5th 6 months	80.000000	\$26.23	\$8.98	\$8.54	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$48.97	\$62.09
6th 6 months	85.000000	\$27.87	\$8.98	\$9.08	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$51.15	\$65.09
7th 6 months	90.000000	\$29.51	\$8.98	\$9.61	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$53.32	\$68.08
8th 6 months	95.000000	\$31.15	\$8.98	\$10.15	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$55.50	\$71.08

Special Calculation Note

OTHER IS :SUPPLEMENTAL UNEMPLOYMENT BENEFITS and International Training.

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Floorlayer Zone NEO 3	LCN01-2025ib	Carpenter	06/18/2025	06/18/2025

Wage Rates

		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR										
Carpenter Floorlayer	\$32.79	\$8.98	\$10.68	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$0.00	\$57.69	\$74.09
Apprentice	Percent	BHR									
1st 3 months	60.000000	\$19.67	\$8.98	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.65	\$38.49
2nd 3 months	60.000000	\$19.67	\$8.98	\$0.00	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$33.89	\$43.73
2nd 6 months	65.000000	\$21.31	\$8.98	\$0.00	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$35.53	\$46.19
3rd 6 months	70.000000	\$22.95	\$8.98	\$0.00	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$37.17	\$48.65
4th 6 months	75.000000	\$24.59	\$8.98	\$0.00	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$38.81	\$51.11
5th 6 months	80.000000	\$26.23	\$8.98	\$8.54	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$48.99	\$62.11
6th 6 months	85.000000	\$27.87	\$8.98	\$9.08	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$51.17	\$65.11
7th 6 months	90.000000	\$29.51	\$8.98	\$9.61	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$53.34	\$68.10
8th 6 months	95.000000	\$31.15	\$8.98	\$10.15	\$0.72	\$0.00	\$4.04	\$0.48	\$0.00	\$55.52	\$71.10

Special Calculation Note

OTHER IS :SUPPLEMENTAL UNEMPLOYMENT BENEFITS and International Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Hev Hwy Zone NHH C2-G	LCN01-2025ib	Carpenter	06/18/2025	06/18/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Carpenter	\$33.19	\$9.02	\$10.68	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$0.00	\$58.24	\$74.84
Apprentice	Percent	BHR									
1st 3 Months	60.000000	\$19.91	\$9.02	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.93	\$38.89
2nd 3 Months	60.000000	\$19.91	\$9.02	\$0.00	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$34.28	\$44.24
2nd 6 Months	65.000000	\$21.57	\$9.02	\$0.00	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$35.94	\$46.73
3rd 6 Months	70.000000	\$23.23	\$9.02	\$0.00	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$37.60	\$49.22
4th 6 Months	75.000000	\$24.89	\$9.02	\$0.00	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$39.26	\$51.71
5th 6 Months	80.000000	\$26.55	\$9.02	\$8.54	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$49.46	\$62.74
6th 6 Months	85.000000	\$28.21	\$9.02	\$9.08	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$51.66	\$65.77
7th 6 Months	90.000000	\$29.87	\$9.02	\$9.61	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$53.85	\$68.79
8th 6 Months	95.000000	\$31.53	\$9.02	\$10.15	\$0.72	\$0.00	\$4.18	\$0.45	\$0.00	\$56.05	\$71.82

Special Calculation Note

Other: Training & Supplemental Unemployment Benefit

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Mahoning, Trumbull

Special Jurisdictional Note

Details

Any construction work as performed within the definitions listed here below, all of which, taken together are "Heavy-Highway Construction" work: "HIGHWAY CONSTRUCTION" work is defined as work performed to provide a facility to accommodate vehicular or pedestrian traffic and includes, but is not limited to, the construction of all streets, roads, expressways, turnpikes, bridges, drainage structures, grade separations, parking lots, rest areas, alleys, sidewalks, guardrails, fences, and sound barriers, but shall not include construction of buildings. "AIRPORT CONSTRUCTION" work is defined as including site preparation, grading, paving, drainage, fences, sidewalks, driveways, parking areas and similar work incidental to the construction of airfields but shall not include the construction of buildings. "HEAVY CONSTRUCTION" work is defined as including, but not limited to grade separations, foundations (does not include building foundations), abutments, retaining walls, shafts, tunnels, subways, elevators, drainage projects, flood control projects, reclamation projects, reservoirs, water supply projects, water development projects, hydro-electric development, utility transmission lines, including right-of-way clearing, locks, dams, dikes, levees, revetments, channels, channel cutoffs, intakes, dredging projects, jetties, breakwater, docks, harbors; and all municipal and utility construction except construction classified as building construction. "RAILROAD CONSTRUCTION" work is defined as including, grading, drainage, placing of rails, crossties, ballast and the construction of bridges, and other incidentals for railroads, street railways construction projects and rapid transit system projects, but shall not include the construction of buildings. "SEWER WATERWORKS AND UTILITY CONSTRUCTION" work is defined as including construction of all storm sewers, sanitary sewers, supplying and distributing waterlines, gas lines, telephone and television conduit, underground electrical lines, and similar utility construction. Main waterline and trunk sewers connecting water works and/or sewage disposal plants are included within this definition. "SUPPORTIVE EXCAVATION AND DEEP FOUNDATIONS" work is all driven and drilled foundations within the building site. "POWER PLANT SITE" work is defined as all work which is inside the property line, but outside the actual building construction. Such work shall include, but is not limited to, the grading and installation of sewer lines, drainage lines, gas lines, telephone and television conduit, underground electrical lines and similar utility construction, parking lots, bridges, roads, streets, sidewalks, reservoirs, ash pits, storage tanks, ramps and other such construction work performed on the work site, but shall not include the actual excavation for the buildings, foundations or footers or construction of the buildings. "POLLUTION CONTROL, SEWAGE PLANT, WASTE PLANT AND WATER TREATMENT FACILITIES CONSTRUCTION" WORK shall be all work in construction of pumping stations, waste and sewage disposal plants, incinerator plants, water treatment plants, filtration plants, solid waste disposal and similar pollution control facilities. "SOLAR & WIND FARM" WORK is considered "HEAVY CONSTRUCTION" and includes all work in the construction of solar fields/farms and wind fields/farms (not installations on buildings).

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Insulation Zone NEO 3	LCN01-2025ib	Carpenter	06/18/2025	06/18/2025

Wage Rates

		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR										
Carpenter Insulation	\$26.23	\$8.98	\$10.68	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$0.00	\$51.11	\$64.23
Apprentice	Percent	BHR									
1st 3 months	60.000000	\$15.74	\$8.98	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.72	\$32.59
2nd 3 months	60.000000	\$15.74	\$8.98	\$0.00	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$29.94	\$37.81
2nd 6 months	65.000000	\$17.05	\$8.98	\$0.00	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$31.25	\$39.77
3rd 6 months	70.000000	\$18.36	\$8.98	\$0.00	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$32.56	\$41.74
4th 6 months	75.020000	\$19.68	\$8.98	\$0.00	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$33.88	\$43.72
5th 6 months	80.000000	\$20.98	\$8.98	\$8.54	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$43.72	\$54.22
6th 6 months	85.000000	\$22.30	\$8.98	\$9.08	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$45.58	\$56.72
7th 6 months	90.000000	\$23.61	\$8.98	\$9.61	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$47.42	\$59.22
8th 6 months	95.000000	\$24.92	\$8.98	\$10.15	\$0.72	\$0.00	\$4.05	\$0.45	\$0.00	\$49.27	\$61.73

Special Calculation Note

OTHER IS :SUPPLEMENTAL UNEMPLOYMENT BENEFITS and Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Mahoning, Trumbull

Special Jurisdictional Note

Details

Rates are for Commercial, Industrial & Road

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Millwright NE Zone M1-D	LCN01-2025ib	Carpenter	06/18/2025	06/18/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Carpenter Millwright	\$37.06	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$63.91	\$82.44	
Certified Welder	\$38.06	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$64.91	\$83.94	
Lay-Out Man on Monorail	\$39.84	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$66.69	\$86.61	
Apprentice	Percent	BHR										
1st 6 months	60.000000	\$22.24	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$49.09	\$60.20
2nd 6 months	65.000000	\$24.09	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$50.94	\$62.98
3rd 6 months	70.000000	\$25.94	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$52.79	\$65.76
4th 6 months	75.000000	\$27.80	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$54.65	\$68.54
5th 6 months	80.000000	\$29.65	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$56.50	\$71.32
6th 6 months	85.000000	\$31.50	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$58.35	\$74.10
7th 6 months	90.000000	\$33.35	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$60.20	\$76.88
8th 6 months	95.000000	\$35.21	\$8.87	\$10.53	\$0.72	\$0.00	\$6.24	\$0.49	\$0.00	\$0.00	\$62.06	\$79.66

Special Calculation Note

Other is: Supplemental Unemployment Benefits and Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Mahoning, Trumbull

Special Jurisdictional Note

Details

The term "Millwright and Machine Erectors" jurisdiction shall mean the unloading, hoisting, rigging, skidding, moving, dismantling, aligning, erecting, assembling, repairing, maintenance and adjusting of all structures, processing areas either under cover, under ground or elsewhere, required to process material, handle, manufacture or service, be it powered or receiving power manually, by steam, gas, electricity, gasoline, diesel, nuclear, solar, water, air or chemically, and in industries such as and including, which are identified for the purpose of description, but not limited to, the following: woodworking plants; canning industries; steel mills; coffee roasting plants; paper and pulp; cellophane; stone crushing; gravel and sand washing and handling; refineries; grain storage and handling; asphalt plants; sewage disposal; water plants; laundries; bakeries; mixing plants; can, bottle and bag packing plants; textile mills; paint mills; breweries; milk processing plants; power plants; aluminum processing or manufacturing plants; and amusement and entertainment fields. The installation of mechanical equipment in atomic energy plants; installation of reactors in power plants; installation of control rods and equipment in reactors; and installation of mechanical equipment in rocket missile bases, launchers, launching gantry, floating bases, hydraulic escape doors and any and all component parts thereto, either assembled, semi-assembled or disassembled. The installation of, but not limited to, the following: setting-up of all engines, motors, generators, air compressors, fans, pumps, scales, hoppers, conveyors of all types, sizes and their supports; escalators; man lifts; moving sidewalks; hoists; dumb waiters; all types of feeding machinery; amusement devices; mechanical pin setters and spotters in bowling alleys; refrigeration equipment; and the installation of all types of equipment necessary and required to process material either in the manufacturing or servicing. The handling and installation of pulleys, gears, sheaves, fly wheels, air and vacuum drives, worm drives and gear drives directly or indirectly coupled to motors, belts, chains, screws, legs, boots, guards, booth tanks, all bin valves, turn heads and indicators, shafting, bearings, cable sprockets, cutting all key seats in new and old work, troughs, chippers, filters, calendars, rolls, winders, rewinders, slitters, cutters, wrapping machines, blowers, forging machines, rams, hydraulic or otherwise, planing, extruder, ball, dust collectors, equipment in meat packing plants, splicing of ropes and cables. The laying-out, fabrication and installation of protection equipment including machinery guards, making and setting of templates for machinery, fabrication of bolts, nuts, pans, drilling of holes for any equipment which the Millwrights install regardless of materials; all welding and burning regardless of type, fabrication of all lines, hose or tubing used in lubricating machinery installed by Millwrights; grinding, cleaning, servicing and any machine work necessary for any part of any equipment installed by the Millwrights; and the break-in and trial run of any equipment or machinery installed by the Millwrights. It is agreed the Millwrights shall use the layout tools and optic equipment necessary to perform their work.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Carpenter Pile Driver Hev Hwy Zone NHH P3-B	LCN01-2025ib	Carpenter	06/18/2025	06/18/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Carpenter Pile Driver	\$33.90	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$58.79	\$75.74	
Diver	\$50.85	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$75.74	\$101.17	
Certified Welder	\$34.95	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$59.84	\$77.32	
Apprentice	Percent	BHR										
1st 6 months	60.000000	\$20.34	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$45.23	\$55.40
2nd 6 months	65.000000	\$22.04	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$46.93	\$57.94
3rd 6 months	70.000000	\$23.73	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$48.62	\$60.49
4th 6 months	75.000000	\$25.43	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$50.32	\$63.03
5th 6 months	80.000000	\$27.12	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$52.01	\$65.57
6th 6 months	85.000000	\$28.82	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$53.71	\$68.11
7th 6 months	90.000000	\$30.51	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$55.40	\$70.66
8th 6 months	95.000000	\$32.21	\$9.27	\$10.53	\$0.72	\$0.00	\$3.88	\$0.49	\$0.00	\$0.00	\$57.10	\$73.20

Special Calculation Note

Other is : Supplemental Unemployment Benefits and Training

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Mahoning, Trumbull

Special Jurisdictional Note

Details

Pile Drivers duties shall include but not limited to: Pile driving, milling, fashioning, joining assembling, erecting, fastening, or dismantling of all material of wood, plastic, metal, fiber, cork and composition and all other substitute materials: pile driving, cutting, fitting and placing of lagging, and the handling, cleaning, erecting, installing and dismantling of machinery, equipment and erecting pre-engineered metal buildings. Pile Drivers work but not limited to: unloading, assembling, erection, repairs, operation, signaling, dismantling and reloading all equipment that is used for pile driving including pile butts is defined as sheeting or scrap piling. Underwater work that may be required in connection with the installation of piling. The driver and his tender work as a team and shall arrive at their own financial arrangements with the contractor. Any configuration of wood, steel, concrete or composite that is jetted, driven or vibrated onto the ground by conventional pile driving equipment for the purpose of supporting a future load that may be permanent or temporary. The construction of all wharves and docks, including the fabrication and installation of floating docks. Driving bracing, plumbing, cutting off and capping of all piling whether wood, metal, pipe piling or composite, loading, unloading, erecting, framing, dismantling, moving and handling of pile driving equipment piling used in the construction and repair of all wharves, docks, piers, trestles, caissons, cofferdams and erection of all sea walls and breakwaters. All underwater and marine work on bulkheads, wharves, docks, shipyards, caissons, piers, bridges, pipeline, work, viaducts, marine cable and trestles, as well as salvage and reclamation work where divers are employed. Rate shall include carpenters, acoustic and ceiling installers, drywall installers, pile drivers and floorlayers.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Cement Mason Local 179	LCN01-2023ib	Cement Mason	06/21/2023	06/21/2023

Wage Rates

		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification	BHR										
Cement Mason	\$31.75	\$9.70	\$7.00	\$0.50	\$0.00	\$4.75	\$0.06	\$0.00	\$0.00	\$53.76	\$69.64
Apprentices	Percent	BHR									
1st 900hrs	55.000000	\$17.46	\$7.70	\$7.00	\$0.50	\$0.00	\$0.00	\$0.06	\$0.00	\$32.72	\$41.45
900-1,800hrs	70.020000	\$22.23	\$7.70	\$7.00	\$0.50	\$0.00	\$0.00	\$0.06	\$0.00	\$37.49	\$48.61
1,800-2,700hrs	80.000000	\$25.40	\$7.70	\$7.00	\$0.50	\$0.00	\$0.00	\$0.06	\$0.00	\$40.66	\$53.36
2,700-3,600hrs	90.020000	\$28.58	\$7.70	\$7.00	\$0.50	\$0.00	\$4.75	\$0.06	\$0.00	\$48.59	\$62.88

Special Calculation Note

Other is for International Training Fund.

Ratio

4 Journeymen to 1 Apprentice per job

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Swing Scaffold \$.75 above hourly rate Color Floor \$.50 above hourly rate

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Cement Mason Local 526 Hev Hwy	LCN01-2026ib	Cement Mason	05/01/2026	04/29/2026

Wage Rates

		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Classification	BHR											
Cement Mason	\$36.00	\$9.30	\$9.03	\$0.75	\$0.00	\$4.25	\$0.08	\$0.00	\$0.00	\$59.41	\$77.41	
Apprentice	Percent	BHR										
1st Year	70.000000	\$25.20	\$9.30	\$9.03	\$0.75	\$0.00	\$4.25	\$0.08	\$0.00	\$0.00	\$48.61	\$61.21
2nd Year	80.000000	\$28.80	\$9.30	\$9.03	\$0.75	\$0.00	\$4.25	\$0.08	\$0.00	\$0.00	\$52.21	\$66.61
3rd Year	90.000000	\$32.40	\$9.30	\$9.03	\$0.75	\$0.00	\$4.25	\$0.08	\$0.00	\$0.00	\$55.81	\$72.01

Special Calculation Note

Other: International Training Fund

Ratio

- 1 Journeyman to 1 Apprentice
- 2 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site, Heavy Construction, Airport Construction Or Railroad Construction Work, Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work, Pollution Control, Sewer Plant, Waste & Water Plant, Water Treatment Facilities Construction.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 High Tension Pipe Type Cable	LCN01-2026ib	Electrical	01/07/2026	01/07/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Electrical Lineman	\$54.94	\$7.50	\$1.65	\$0.55	\$0.00	\$13.19	\$1.00	\$0.00	\$0.00	\$78.83	\$106.30
Certified Lineman Welder	\$54.94	\$7.50	\$1.65	\$0.55	\$0.00	\$13.19	\$1.00	\$0.00	\$0.00	\$78.83	\$106.30
Certified Cable Splicer	\$54.94	\$7.50	\$1.65	\$0.55	\$0.00	\$13.19	\$1.00	\$0.00	\$0.00	\$78.83	\$106.30
Operator A	\$49.20	\$7.50	\$1.48	\$0.49	\$0.00	\$11.81	\$1.00	\$0.00	\$0.00	\$71.48	\$96.08
Operator B	\$43.52	\$7.50	\$1.31	\$0.44	\$0.00	\$10.44	\$1.00	\$0.00	\$0.00	\$64.21	\$85.97
Operator C	\$34.93	\$7.50	\$1.05	\$0.35	\$0.00	\$8.38	\$1.00	\$0.00	\$0.00	\$53.21	\$70.67
Groundman 0-12 months Exp	\$27.47	\$7.50	\$0.82	\$0.27	\$0.00	\$6.59	\$1.00	\$0.00	\$0.00	\$43.65	\$57.38
Groundman 0-12 months Exp w/CDL	\$30.22	\$7.50	\$0.91	\$0.30	\$0.00	\$7.25	\$1.00	\$0.00	\$0.00	\$47.18	\$62.29
Groundman 1 yr or more	\$30.22	\$7.50	\$0.91	\$0.30	\$0.00	\$7.25	\$1.00	\$0.00	\$0.00	\$47.18	\$62.29
Groundman 1 yr or more w/CDL	\$35.71	\$7.50	\$1.07	\$0.36	\$0.00	\$8.57	\$1.00	\$0.00	\$0.00	\$54.21	\$72.06
Equipment Mechanic A	\$43.52	\$7.50	\$1.31	\$0.44	\$0.00	\$10.44	\$1.00	\$0.00	\$0.00	\$64.21	\$85.97
Equipment Mechanic B	\$39.22	\$7.50	\$1.18	\$0.39	\$0.00	\$9.41	\$1.00	\$0.00	\$0.00	\$58.70	\$78.31
Equipment Mechanic C	\$34.92	\$7.50	\$1.05	\$0.35	\$0.00	\$8.38	\$1.00	\$0.00	\$0.00	\$53.20	\$70.66
X-Ray Technician	\$54.94	\$7.50	\$1.65	\$0.55	\$0.00	\$13.19	\$1.00	\$0.00	\$0.00	\$78.83	\$106.30
Apprentice	Percent	BHR									
1st 1000 hrs	60.000000	\$32.96	\$7.50	\$0.99	\$0.33	\$0.00	\$7.91	\$1.00	\$0.00	\$50.69	\$67.17
2nd 1000 hrs	65.000000	\$35.71	\$7.50	\$1.07	\$0.36	\$0.00	\$8.57	\$1.00	\$0.00	\$54.21	\$72.06
3rd 1000 hrs	70.000000	\$38.46	\$7.50	\$1.15	\$0.38	\$0.00	\$9.23	\$1.00	\$0.00	\$57.72	\$76.95
4th 1000 hrs	75.000000	\$41.20	\$7.50	\$1.24	\$0.41	\$0.00	\$9.89	\$1.00	\$0.00	\$61.24	\$81.84
5th 1000 hrs	80.000000	\$43.95	\$7.50	\$1.32	\$0.44	\$0.00	\$10.55	\$1.00	\$0.00	\$64.76	\$86.74
6th 1000 hrs	85.000000	\$46.70	\$7.50	\$1.39	\$0.47	\$0.00	\$11.21	\$1.00	\$0.00	\$68.27	\$91.62
7th 1000 hrs	90.000000	\$49.45	\$7.50	\$1.48	\$0.49	\$0.00	\$11.87	\$1.00	\$0.00	\$71.79	\$96.52

Special Calculation Note

Other is Health Reimbursement Account

Ratio

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Operator "A": John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater than 25 tons and less than 45 tons).
 Operator "B": Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.
 Operator "C": Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

Special Notes:

When Cable Splicer helpers are used, they must be a Journeyman Lineman.

Pipe installation, holiday testing, welding, cable splicing operation of vacuum pumps and cable pulling equipment and all work requiring the use of hand tools shall be done by Journeymen and Apprentices. Pipe coating, manhole preparations and conditioning, nitrogen connections and flowmeter installation shall be done by or under the direct supervision of a Journeyman.

At least two (2) Journeyman Linemen in addition to certified lineman welders shall be employed to install high voltage pipe.

When pulling cable, at least six (6) of the workmen shall be no less than Journeyman classifications. When pumping oil, only Journeyman Lineman or equipment operators shall be permitted to operate degasifying and oil pumping equipment

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Outside Mahoning Valley	LCN01-2025ib	Electrical	06/04/2025	06/04/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Electrical Lineman	\$46.03	\$7.50	\$1.38	\$0.46	\$0.00	\$9.20	\$0.50	\$0.00	\$0.00	\$65.07	\$88.09
Traffic Signal & Lighting Journeyman	\$44.43	\$7.50	\$1.33	\$0.44	\$0.00	\$8.89	\$0.50	\$0.00	\$0.00	\$63.09	\$85.31
Equipment Operator	\$40.44	\$7.50	\$1.21	\$0.40	\$0.00	\$8.09	\$0.50	\$0.00	\$0.00	\$58.14	\$78.36
Groundman 0-12 months (W/O CDL)	\$24.52	\$7.50	\$0.74	\$0.25	\$0.00	\$4.90	\$0.50	\$0.00	\$0.00	\$38.41	\$50.67
Groundman 0-21 Months (W/CDL)	\$26.78	\$7.50	\$0.80	\$0.27	\$0.00	\$5.36	\$0.50	\$0.00	\$0.00	\$41.21	\$54.60
Groundman 1 Year or More (W/CDL)	\$29.07	\$7.50	\$0.87	\$0.29	\$0.00	\$5.81	\$0.50	\$0.00	\$0.00	\$44.04	\$58.58
Traffic Signal Apprentices											
1st 1,000 hours	\$26.66	\$7.50	\$0.80	\$0.27	\$0.00	\$5.33	\$0.50	\$0.00	\$0.00	\$41.06	\$54.39
2nd 1,000 hours	\$28.88	\$7.50	\$0.87	\$0.29	\$0.00	\$5.78	\$0.50	\$0.00	\$0.00	\$43.82	\$58.26
3rd 1,000 hours	\$31.10	\$7.50	\$0.93	\$0.31	\$0.00	\$6.22	\$0.50	\$0.00	\$0.00	\$46.56	\$62.11
4th 1,000 hours	\$33.32	\$7.50	\$1.00	\$0.33	\$0.00	\$6.66	\$0.50	\$0.00	\$0.00	\$49.31	\$65.97
5th 1,000 hours	\$35.54	\$7.50	\$1.07	\$0.36	\$0.00	\$7.11	\$0.50	\$0.00	\$0.00	\$52.08	\$69.85
6th 1,000 hours	\$39.99	\$7.50	\$1.20	\$0.40	\$0.00	\$8.00	\$0.50	\$0.00	\$0.00	\$57.59	\$77.59
Apprentice Lineman	Percent	BHR									
1st 1,000 Hours	60.000000	\$27.62	\$7.50	\$0.83	\$0.28	\$0.00	\$5.52	\$0.50	\$0.00	\$42.25	\$56.06
2nd 1,000 Hours	65.000000	\$29.92	\$7.50	\$0.90	\$0.30	\$0.00	\$5.98	\$0.50	\$0.00	\$45.10	\$60.06
3rd 1,000 Hours	70.000000	\$32.22	\$7.50	\$0.97	\$0.32	\$0.00	\$6.44	\$0.50	\$0.00	\$47.95	\$64.06
4th 1,000 Hours	75.000000	\$34.52	\$7.50	\$1.04	\$0.35	\$0.00	\$6.90	\$0.50	\$0.00	\$50.81	\$68.07
5th 1,000 Hours	80.000000	\$36.82	\$7.50	\$1.10	\$0.37	\$0.00	\$7.36	\$0.50	\$0.00	\$53.65	\$72.07
6th 1,000 Hours	85.000000	\$39.13	\$7.50	\$1.17	\$0.39	\$0.00	\$7.82	\$0.50	\$0.00	\$56.51	\$76.07
7th 1,000 Hours	90.000000	\$41.43	\$7.50	\$1.24	\$0.41	\$0.00	\$8.28	\$0.50	\$0.00	\$59.36	\$80.07

Special Calculation Note

Other is Health Reimbursement Account

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull*

Special Jurisdictional Note

Details

A groundman when directed shall assist a Journeyman in the performance of his/her work on the ground, including the use of hand tools. A Groundman under no circumstances shall climb poles, towers, ladders, or work from an elevated platform or bucket truck. No more than three (3) Groundmen shall work alone. Jobs with more than three Groundmen shall be supervised by a Groundcrew Foreman, Journeyman Lineman, Journeyman Traffic Signal Technician or an Equipment Operator. Scope of Work: installation and maintenance of highway and street lighting, highway and street sign lighting, electronic message boards and traffic control systems, camera systems, traffic signal work, substation and line construction including overhead and underground projects for private and industrial work as in accordance with the IBEW Constitution. This Agreement includes the operation of all tools and equipment necessary for the installation of the above projects.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Outside Utility Power	LCN01-2026ib	Electrical	01/07/2026	01/07/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Electrical Lineman	\$52.03	\$7.50	\$1.56	\$0.52	\$0.00	\$12.49	\$1.00	\$0.00	\$0.00	\$75.10	\$101.12	
Substation Technician	\$52.03	\$7.50	\$1.56	\$0.50	\$0.00	\$12.49	\$1.00	\$0.00	\$0.00	\$75.08	\$101.09	
Cable Splicer	\$54.50	\$7.50	\$1.64	\$0.55	\$0.00	\$13.08	\$1.00	\$0.00	\$0.00	\$78.27	\$105.52	
Operator A	\$46.61	\$7.50	\$1.40	\$0.47	\$0.00	\$11.19	\$1.00	\$0.00	\$0.00	\$68.17	\$91.47	
Operator B	\$41.17	\$7.50	\$1.23	\$0.41	\$0.00	\$9.87	\$1.00	\$0.00	\$0.00	\$61.18	\$81.77	
Operator C	\$33.00	\$7.50	\$0.99	\$0.33	\$0.00	\$7.92	\$1.00	\$0.00	\$0.00	\$50.74	\$67.24	
Groundman 0-12 months Exp	\$26.02	\$7.50	\$0.78	\$0.26	\$0.00	\$6.24	\$1.00	\$0.00	\$0.00	\$41.80	\$54.81	
Groundman 0-12 months Exp w/CDL	\$28.62	\$7.50	\$0.86	\$0.29	\$0.00	\$6.87	\$1.00	\$0.00	\$0.00	\$45.14	\$59.45	
Groundman 1 yr or more	\$28.62	\$7.50	\$0.86	\$0.29	\$0.00	\$6.87	\$1.00	\$0.00	\$0.00	\$45.14	\$59.45	
Groundman 1 yr or more w/CDL	\$33.82	\$7.50	\$1.01	\$0.34	\$0.00	\$8.12	\$1.00	\$0.00	\$0.00	\$51.79	\$68.70	
Equipment Mechanic A	\$41.17	\$7.50	\$1.23	\$0.41	\$0.00	\$9.87	\$1.00	\$0.00	\$0.00	\$61.18	\$81.77	
Equipment Mechanic B	\$37.09	\$7.50	\$1.11	\$0.37	\$0.00	\$8.90	\$1.00	\$0.00	\$0.00	\$55.97	\$74.52	
Equipment Mechanic C	\$33.00	\$7.50	\$0.99	\$0.33	\$0.00	\$7.92	\$1.00	\$0.00	\$0.00	\$50.74	\$67.24	
Line Truck w/auger	\$36.40	\$7.50	\$1.09	\$0.36	\$0.00	\$8.71	\$1.00	\$0.00	\$0.00	\$55.06	\$73.26	
Apprentice	Percent	BHR										
1st 1000 hrs	60.000000	\$31.22	\$7.50	\$0.94	\$0.31	\$0.00	\$7.49	\$1.00	\$0.00	\$0.00	\$48.46	\$64.07
2nd 1000 hrs	65.000000	\$33.82	\$7.50	\$1.01	\$0.34	\$0.00	\$8.12	\$1.00	\$0.00	\$0.00	\$51.79	\$68.70
3rd 1000 hrs	70.000000	\$36.42	\$7.50	\$1.09	\$0.36	\$0.00	\$8.74	\$1.00	\$0.00	\$0.00	\$55.11	\$73.32
4th 1000 hrs	75.000000	\$39.02	\$7.50	\$1.17	\$0.39	\$0.00	\$9.37	\$1.00	\$0.00	\$0.00	\$58.45	\$77.96
5th 1000 hrs	80.000000	\$41.62	\$7.50	\$1.25	\$0.44	\$0.00	\$9.99	\$1.00	\$0.00	\$0.00	\$61.80	\$82.61
6th 1000 hrs	85.000000	\$44.23	\$7.50	\$1.33	\$0.44	\$0.00	\$10.61	\$1.00	\$0.00	\$0.00	\$65.11	\$87.22
7th 1000 hrs	90.000000	\$46.83	\$7.50	\$1.40	\$0.47	\$0.00	\$11.24	\$1.00	\$0.00	\$0.00	\$68.44	\$91.86

Special Calculation Note

Other: Health Reimbursement Account

Ratio

(1) Journeyman Lineman to (1) Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Operator "A": John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater than 25 tons and less than 45 tons).
 Operator "B": Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.
 Operator "C": Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Underground Residential Distribution	LCN01-2026ib	Electrical	01/07/2026	01/07/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
URD Electrician	\$39.42	\$7.50	\$1.18	\$0.39	\$0.00	\$9.43	\$1.00	\$0.00	\$0.00	\$58.92	\$78.63	
Equipment Operator A	\$35.24	\$7.50	\$1.06	\$0.35	\$0.00	\$8.46	\$1.00	\$0.00	\$0.00	\$53.61	\$71.23	
Equipment Operator B	\$32.34	\$7.50	\$0.97	\$0.32	\$0.00	\$7.76	\$1.00	\$0.00	\$0.00	\$49.89	\$66.06	
Directional Drill Locator	\$35.24	\$7.50	\$1.06	\$0.35	\$0.00	\$8.46	\$1.00	\$0.00	\$0.00	\$53.61	\$71.23	
Directional Drill Operator	\$32.34	\$7.50	\$0.97	\$0.32	\$0.00	\$7.76	\$1.00	\$0.00	\$0.00	\$49.89	\$66.06	
Groundman 0-12 months Exp	\$25.50	\$7.50	\$0.77	\$0.26	\$0.00	\$6.12	\$1.00	\$0.00	\$0.00	\$41.15	\$53.90	
Groundman 0-12 months Exp w/CDL	\$28.15	\$7.50	\$0.84	\$0.28	\$0.00	\$6.76	\$1.00	\$0.00	\$0.00	\$44.53	\$58.60	
Groundman 1 yr or more	\$28.15	\$7.50	\$0.84	\$0.28	\$0.00	\$6.76	\$1.00	\$0.00	\$0.00	\$44.53	\$58.60	
Groundman 1 yr or more w/CDL	\$33.47	\$7.50	\$1.00	\$0.33	\$0.00	\$8.03	\$1.00	\$0.00	\$0.00	\$51.33	\$68.06	
Apprentice	Percent	BHR										
1st 1000 hrs	80.000000	\$31.54	\$7.50	\$0.95	\$0.32	\$0.00	\$7.57	\$1.00	\$0.00	\$0.00	\$48.88	\$64.65
2nd 1000 hrs	85.000000	\$33.51	\$7.50	\$1.01	\$0.34	\$0.00	\$8.04	\$1.00	\$0.00	\$0.00	\$51.40	\$68.16
3rd 1000 hrs	90.000000	\$35.48	\$7.50	\$1.06	\$0.35	\$0.00	\$8.51	\$1.00	\$0.00	\$0.00	\$53.90	\$71.64
4th 1000 hrs	95.000000	\$37.45	\$7.50	\$1.12	\$0.37	\$0.00	\$8.99	\$1.00	\$0.00	\$0.00	\$56.43	\$75.16

Special Calculation Note

Other: Health Reimbursement Account

Ratio

(1) Journeyman Lineman to (1) Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

This work applies to projects designated for any outside Underground Residential Distribution construction work for electrical utilities, municipalities and rural electrification projects.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Electrical Local 71 Voice Data Video Outside	LCN02-2024ib	Electrical	03/06/2024	03/06/2024

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Electrical Installer Technician I	\$35.39	\$7.25	\$1.06	\$0.00	\$0.00	\$1.77	\$0.00	\$0.00	\$0.00	\$45.47	\$63.17
Installer Technician II	\$33.37	\$7.25	\$1.00	\$0.00	\$0.00	\$1.67	\$0.00	\$0.00	\$0.00	\$43.29	\$59.98
Installer Repairman	\$33.37	\$7.25	\$1.00	\$0.00	\$0.00	\$1.67	\$0.00	\$0.00	\$0.00	\$43.29	\$59.98
Equipment Operator II	\$24.98	\$7.25	\$0.75	\$0.00	\$0.00	\$1.25	\$0.00	\$0.00	\$0.00	\$34.23	\$46.72
Cable Splicer	\$35.39	\$7.25	\$1.06	\$0.00	\$0.00	\$1.77	\$0.00	\$0.00	\$0.00	\$45.47	\$63.17
Ground Driver W/CDL	\$16.69	\$7.25	\$0.50	\$0.00	\$0.00	\$0.83	\$0.00	\$0.00	\$0.00	\$25.27	\$33.62
Groundman	\$14.57	\$7.25	\$0.44	\$0.00	\$0.00	\$0.73	\$0.00	\$0.00	\$0.00	\$22.99	\$30.28
Trainees	Percent	BHR									
Trainee F	50.010000	\$17.70	\$7.25	\$0.53	\$0.00	\$0.89	\$0.00	\$0.00	\$0.00	\$26.37	\$35.22
Trainee E	58.000000	\$20.53	\$7.25	\$0.62	\$0.00	\$1.03	\$0.00	\$0.00	\$0.00	\$29.43	\$39.69
Trainee D	66.000000	\$23.36	\$7.25	\$0.70	\$0.00	\$1.17	\$0.00	\$0.00	\$0.00	\$32.48	\$44.16
Trainee C	74.000000	\$26.19	\$7.25	\$0.79	\$0.00	\$1.31	\$0.00	\$0.00	\$0.00	\$35.54	\$48.63
Trainee B	82.000000	\$29.02	\$7.25	\$0.87	\$0.00	\$1.45	\$0.00	\$0.00	\$0.00	\$38.59	\$53.10
Trainee A	90.000000	\$31.85	\$7.25	\$0.96	\$0.00	\$1.59	\$0.00	\$0.00	\$0.00	\$41.65	\$57.58

Special Calculation Note

Ratio

1Trainee to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note)

Adams, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Delaware, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hamilton, Harrison, Highland, Hocking, Holmes, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Perry, Pickaway, Pike, Portage, Preble, Richland, Ross, Scioto, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne

Special Jurisdictional Note

Details

Cable Splicer: Inspect and test lines or cables, analyze results, and evaluate transmission characteristics. Cover conductors with insulation or seal splices with moisture-proof covering. Install, splice, test, and repair cables using tools or mechanical equipment. This will include the splicing of fiber. Installer Technician I: Must know all aspects of telephone and cable work. This is to include aerial, underground, and manhole work. Must know how to climb and run bucket. Must have all the tools required to perform these tasks. Must be able to be responsible for the safety of the crew at all times. Must also have CDL license and have at least 5 years experience. Installer Repairman: Perform tasks of repairing, installing, and testing phone and CATV services. Installer Technician II: Have at least three years of telephone and CATV experience. Must have the knowledge of underground, aerial, and manhole work. Must be able to climb and operate bucket. Must have CDL. Must have all tools needed to perform these tasks. Equipment Operator II: Able to operate a digger derrick or bucket truck. Have at least 3 years of experience and must have a valid CDL license. Groundman W/CDL: Must have a valid CDL license and be able to perform tasks such as: climbing poles, pulling down guys, making up material, and getting appropriate tools for the job. Must have at least 5 year's experience. Groundman: Perform tasks such as: climbing poles, pulling down guys, making up material, and getting appropriate tools for the job. Experience 0-5 years.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Elevator Local 45	LCN01-2026ib	Elevator	03/18/2026	03/18/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Elevator Mechanic	\$63.14	\$16.37	\$11.06	\$0.85	\$5.05	\$10.70	\$2.38	\$0.00	\$0.00	\$109.55	\$141.12
Assistant. Mechanic	\$50.51	\$16.37	\$11.06	\$0.85	\$4.04	\$10.70	\$1.90	\$0.00	\$0.00	\$95.43	\$120.69
Helper	\$44.20	\$16.37	\$11.06	\$0.85	\$3.54	\$10.70	\$1.66	\$0.00	\$0.00	\$88.38	\$110.48
Apprentice	Percent	BHR									
0-6 months Probation	50.000000	\$31.57	\$0.00	\$0.00	\$0.00	\$1.89	\$0.00	\$0.00	\$0.00	\$33.46	\$49.25
1st year	55.000000	\$34.73	\$16.37	\$11.06	\$0.85	\$2.08	\$10.70	\$1.31	\$0.00	\$77.10	\$94.47
2nd year	65.000000	\$41.04	\$16.37	\$11.06	\$0.85	\$2.46	\$10.70	\$1.55	\$0.00	\$84.03	\$104.55
3rd year	70.000000	\$44.20	\$16.37	\$11.06	\$0.85	\$2.65	\$10.70	\$1.66	\$0.00	\$87.49	\$109.59
4th year	80.000000	\$50.51	\$16.37	\$11.06	\$0.85	\$3.03	\$10.70	\$1.90	\$0.00	\$94.42	\$119.68

Special Calculation Note

Other: Holiday Pay

Ratio

- 1 Journeyman to 1 Apprentice
- 1 Journeyman to 1 Helper
- 1 Journeyman to 1 Assistant Mechanic

Jurisdiction (* denotes special jurisdictional note)

Ashland, Carroll, Columbiana, Coshocton, Harrison, Holmes, Mahoning, Medina, Portage, Richland, Stark, Summit, Trumbull, Tuscarawas, Wayne

Special Jurisdictional Note

Details

Vacation 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Glazier Local 847	LCN01-2025ib	Glazier	08/20/2025	08/20/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Glazier	\$32.46	\$7.85	\$10.64	\$0.19	\$0.00	\$1.91	\$0.00	\$0.00	\$0.00	\$53.05	\$69.28
Apprentice	Percent	BHR									
0-750 Hrs 0-3 Months	65.000000	\$21.10	\$0.00	\$0.00	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$21.29	\$31.84
0-750 Hrs 3-6 Months	65.000000	\$21.10	\$7.85	\$0.00	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$29.14	\$39.69
751-1500 Hrs	65.000000	\$21.10	\$7.85	\$1.02	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$30.16	\$40.71
1501-2250 Hrs.	70.000000	\$22.72	\$7.85	\$1.02	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$31.78	\$43.14
2251-3000 Hrs.	70.000000	\$22.72	\$7.85	\$1.02	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$31.78	\$43.14
3001-3750 Hrs.	80.000000	\$25.97	\$7.85	\$1.02	\$0.19	\$0.00	\$1.25	\$0.00	\$0.00	\$36.28	\$49.27
3751-4500 Hrs	80.000000	\$25.97	\$7.85	\$1.02	\$0.19	\$0.00	\$1.25	\$0.00	\$0.00	\$36.28	\$49.27
4501-5250 Hrs.	90.000000	\$29.21	\$7.85	\$1.02	\$0.19	\$0.00	\$1.25	\$0.00	\$0.00	\$39.52	\$54.13
5251-6000 Hrs.	90.000000	\$29.21	\$7.85	\$1.02	\$0.19	\$0.00	\$1.25	\$0.00	\$0.00	\$39.52	\$54.13

Special Calculation Note

Ratio

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Ironworker Local 207	LCN01-2026ib	Ironworker	06/01/2026	05/27/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Ironworker	\$37.76	\$8.25	\$9.76	\$1.02	\$0.00	\$6.54	\$3.32	\$0.00	\$0.00	\$66.65	\$85.53	
Layout Man and Sheeter	\$38.76	\$8.25	\$9.76	\$1.02	\$0.00	\$6.54	\$3.32	\$0.00	\$0.00	\$67.65	\$87.03	
Apprentice	Percent	BHR										
1st Year	65.000000	\$24.54	\$8.25	\$9.76	\$1.02	\$0.00	\$0.00	\$3.32	\$0.00	\$0.00	\$46.89	\$59.16
2nd Year	75.000000	\$28.32	\$8.25	\$9.76	\$1.02	\$0.00	\$0.00	\$3.32	\$0.00	\$0.00	\$50.67	\$64.83
3rd Year	85.000000	\$32.10	\$8.25	\$9.76	\$1.02	\$0.00	\$5.23	\$3.32	\$0.00	\$0.00	\$59.68	\$75.73
4th Year	95.000000	\$35.87	\$8.25	\$9.76	\$1.02	\$0.00	\$5.89	\$3.32	\$0.00	\$0.00	\$64.11	\$82.04

Special Calculation Note

OTHER: MEDICAL SAVINGS ACCOUNT/OUT OF POCKET MEDICAL EXPENSES: V.E.B.A.

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Ashtabula*, Columbiana*, Mahoning, Portage*, Trumbull

Special Jurisdictional Note

Ashtabula County: All territory from the Geauga county line on the West boundary South of State Route 6 and East of State Route 11 and South of Interstate Route 90 to the Pennsylvania line.
 Columbiana County: All territory east of a line from a point one (1) mile West of the intersection of Rt 224 and Rt 14 at Deerfield Circle, Deerfield, Ohio to a point where Columbiana County Rt 776 intersects with Columbian-Jefferson County line.
 Portage County shall be as follows: Hiram College and Ravenna Arsenal, the part of Portage County East of a line from Middlefield to Shalersville to Deerfield. South of Route 6, starting at the Geauga County Line, proceeding East to State Route 11 on the East boundary and South of Interstate Route 90 to the Pennsylvania line.

Details

Reinforcing Iron Work Classification including but not limited to: all work in connection with field fabrication, handling (including loading and off-loading), sorting, cutting, bending, hoisting, placing, burning, welding and tying or securing of all materials used to reinforce concrete: all sizes and types of reinforcing steel (including composite material) wire mesh, hoops and stirrups, including mechanical splicing on reinforcing steel bar. The unloading, hoisting, placing and tying of all post tensioning cables. Also, wrecking of cores, wedging of the tendons, stressing, cutting and repairing.

Structural Iron Work but not limited to: field fabrication, all loading to and including the erecting, rigging, assembly, dismantling, placing, temporary and permanent securing by any means of all structural iron, steel, ornamental lead, bronze, brass, copper, aluminum, glass all ferrous and non-ferrous metal and composite material, pre-cast, pre-stressed and post-stressed concrete structures. Bridges and bridge rails, bridge viaducts, bucks, bulkheads, bumper and bumper post, canopies and uni-strut canopies, corrugated ferrous and non-ferrous sheets when attached to steel frames, columns, beams, bar joists, trusses, girders, roof decking, electrical supports, elevator cars, elevator fronts and enclosures, erection of steel towers, flag poles, gymnasium equipment, stadium and arena seating, jail cell work, jail cell beds, benches, bunks, chairs, tables, mirrors, jail cell access doors, rigging and installation of machinery and equipment erecting, aligning, anchoring and dismantling, erection and dismantling of tower cranes, derrick monorail systems, Chicago booms, overhead cranes, gantries, material and personnel hoists, tanks, hoppers and conveyors. All pre-engineered metal buildings in their entirety which includes but not limited to erection, siding, roofing, gutters, insulation and downspouts.

Ornamental Iron Work but not limited to: all work in connection with field fabrication, handling including loading and off-loading, sorting, cutting, fastening, anchoring, bending, hoisting, placing, burning, welding and tying, dismantling of all materials used in miscellaneous iron or steel, from stairs, hand railings, rolling doors, rolling gates, rolling shutters, fence, windows, curtain wall, erection and welding of all metal, sash, architectural and ornamental treatments, but not necessarily limited to all sizes and types of ornamental, steel, iron, lead, bronze, brass, copper, aluminum, all ferrous and non-ferrous metals and composite materials.

Fence Erector Iron Worker but not limited to: All work in connection with the field fabrication and erection of chain link fence, which includes but not limited to the loading and of the fence fabric and posts also the installation of the above.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Labor HevHwy 2	LCN01-2026ib	Laborer	05/01/2026	04/29/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Laborer Group 1	\$39.20	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$56.30	\$75.90	
Group 2	\$39.37	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$56.47	\$76.16	
Group 3	\$39.70	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$56.80	\$76.65	
Group 4	\$40.15	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$57.25	\$77.32	
Watch Person	\$33.50	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$50.60	\$67.35	
Apprentice	Percent	BHR										
0-1000 hrs	80.000000	\$31.36	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$48.46	\$64.14
1001-2000 hrs	85.000000	\$33.32	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$50.42	\$67.08
2001-3000 hrs	90.000000	\$35.28	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$52.38	\$70.02
3001-4000 hrs	95.000000	\$37.24	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$54.34	\$72.96
More Than 4000 hrs	100.000000	\$39.20	\$9.45	\$4.60	\$0.45	\$0.00	\$2.50	\$0.00	\$0.10	\$0.00	\$56.30	\$75.90

Special Calculation Note

Tunnel Laborer rate with air-pressurized add \$1.00 to the above wage rate.

Commercial Driver's License – Any Laborer required to utilize a valid Commercial Driver's License (CDL), are in compliance with necessary FMCSA regulations and approved by the Contractor to operate a Commercial Motor Vehicle (CMV), shall be paid one dollar (\$1.00) per hour above the base rate for the entirety of their working shift.

Ratio

1 Journeyman to 1 Apprentice
 3 Journeymen to 1 Apprentice thereafter

Watchman has no Apprentices.

Jurisdiction (* denotes special jurisdictional note)

Ashtabula, Erie, Huron, Lorain, Lucas, Mahoning, Medina, Ottawa, Portage, Sandusky, Stark, Summit, Trumbull, Wood

Special Jurisdictional Note

Hod Carriers and Common Laborers - Heavy, Highway, Sewer, Waterworks, Utility, Airport, Railroad, Industrial and Building Site, Sewer Plant, Waste Water Treatment Facilities Construction

Details

Group 1 Laborer (Construction); Plant Laborer or Yardman, Right-of-way Laborer, Landscape Laborer, Highway Lighting Worker, Signalization Worker, (Swimming) Pool Construction Laborer, Utility Man, *Bridgeman, Handyman, Joint Setter, Flagperson, Carpenter Helper, Waterproofing Laborer, Slurry Seal, Seal Coating, Surface Treatment or Road Mix Laborer, Riprap Laborer & Grouter, Asphalt Laborer, Dump Man (batch trucks), Guardrail & Fence Installer, Mesh Handler & Placer, Concrete Curing Applicator, Scaffold Erector, Sign Installer, Hazardous Waste (level D), Diver Helper, Zone Person and Traffic Control. *Bridgeman will perform work as per the October 31, 1949, memorandum on concrete forms, by and between the United Brotherhood of Carpenters and Joiners of America and the Laborers' International Union of North America, which states in; "the moving, cleaning, oiling and carrying to the next point of erection, and the stripping of forms which are not to be re-used, and forms on all flat arch work shall be done by members of the Laborers' International Union of North America."

Group 2 Asphalt Raker, Screwman or Paver, Concrete Puddler, Kettle Man (pipeline), All Machine-Driven Tools (Gas, Electric, Air), Mason Tender, Brick Paver, Mortar Mixer, Skid Steer, Sheeting & Shoring Person, Surface Grinder Person, Screedperson, Water Blast, Hand Held Wand, Power Buggy or Power Wheelbarrow, Paint Striper, Plastic fusing Machine Operator, Rodding Machine Operator, Pug Mill Operator, Operator of All Vacuum Devices Wet or Dry, Handling of all Pumps 4 inches and under (gas, air or electric), Diver, Form Setter, Bottom Person, Welder Helper (pipeline), Concrete Saw Person, Cutting with Burning Torch, Pipe Layer, Hand Spiker (railroad), Underground Person (working in sewer and waterline, cleaning, repairing and reconditioning), Tunnel Laborer (without air), Caisson, Cofferdam (below 25 feet deep), Air Track and Wagon Drill, Sandblaster Nozzle Person, Hazardous Waste (level B), ***Lead Abatement, Hazardous Waste (level C) ***Includes the erecting of structures for the removal, including the encapsulation and containment of Lead abatement process.

Group 3 Blast and Powder Person, Muckers will be defined as shovel men working directly with the miners, Wrencher (mechanical joints & utility pipeline), Yarner, Top Lander, Hazardous Waste (level A), Concrete Specialist, Curb Setter and Cutter, Grade Checker, Concrete Crew in Tunnels. Utility pipeline Tappers, Waterline, Caulker, Signal Person will receive the rate equal to the rate paid the Laborer classification for which the Laborer is signaling.

Group 4 Miner, Welder, Gunite Nozzle Person A.) The Watchperson shall be responsible to patrol and maintain a safe traffic zone including but not limited to barrels, cones, signs, arrow boards, message boards etc. The responsibility of a watchperson is to see that the equipment, job and office trailer etc. are secure.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Labor Local 125 Building	LCN01-2026ib	Laborer	06/01/2026	05/27/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Laborer Group 1	\$33.14	\$9.45	\$4.60	\$0.40	\$0.00	\$1.50	\$0.00	\$0.10	\$0.00	\$49.19	\$65.76	
Laborer Group 2	\$33.50	\$9.45	\$4.60	\$0.40	\$0.00	\$1.50	\$0.00	\$0.10	\$0.00	\$49.55	\$66.30	
Laborer Group 3	\$24.34	\$9.45	\$4.60	\$0.40	\$0.00	\$1.50	\$0.00	\$0.10	\$0.00	\$40.39	\$52.56	
Apprentice	Percent	BHR										
0 - 1000 Hours	65.000000	\$21.54	\$9.45	\$4.60	\$0.40	\$0.00	\$1.50	\$0.00	\$0.10	\$0.00	\$37.59	\$48.36
1001 - 2000 Hours	75.000000	\$24.86	\$9.45	\$4.60	\$0.40	\$0.00	\$1.50	\$0.00	\$0.10	\$0.00	\$40.91	\$53.34
2001 - 3000 Hours	80.000000	\$26.51	\$9.45	\$4.60	\$0.40	\$0.00	\$1.50	\$0.00	\$0.10	\$0.00	\$42.56	\$55.81
3001 - 4000 Hours	90.000000	\$29.83	\$9.45	\$4.60	\$0.40	\$0.00	\$1.50	\$0.00	\$0.10	\$0.00	\$45.88	\$60.80
More than 4000 hours	100.000000	\$33.14	\$9.45	\$4.60	\$0.40	\$0.00	\$1.50	\$0.00	\$0.10	\$0.00	\$49.19	\$65.76

Special Calculation Note

\$0.10 for LECET is for Labor Management

Ratio

1 Journeymen to 1 Apprentice
4 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Mahoning

Special Jurisdictional Note

Details

Group 1: Building and Construction Laborer; Asbestos removal (Asbestos Removal shall include, but not be limited to the erection, moving, servicing and dismantling of all tools and equipment normally used in the handling, control removal or disposal of asbestos and toxic waste; the bagging, cartoning, crafting, or otherwise packaging of materials for disposal); Asphalt Paving; Railroad Laborer Construction; Carpenter Tenders, Asbestos Removal. (See Addendum B). Mortar Mixer (hand or machine); Mason Tender; Jack Hammer Operator, all machine driven tools electric, gas or air operation of all pumps under 4", spikers: all Laborers working in concrete such as pouring, puddling, raking and conveying; all scaffold help, scrap iron burning. Hod carrier, Rough Terrain Forklift Driver when tending masons: all work done by Laborers 7ft. or more in depth. Laborers (except jack hammer) working on repair of blast furnaces or coke plant and auxiliary facilities. Jack Hammer Operator in trench or shaft 7ft. or more in depth: Concrete Buster: pipe layers: powder and dynamite: Jack hammer on blast furnace or coke plant and auxiliary facilities. Wrench Laborer: miner - air tool: gunting and sandblasting, pump-crete operation: Build Up Rates-Blast Furnace; Ram Tight; Bellam and Hook-up Man; Lancing Blast Furnace.

Group 2: Hazardous Waste-Level A Hazardous Waste-Level B Hazardous Waste-Level C Hazardous Waste-Level D

Group 3: Laborers performing residential building construction on four stories or less.

Prevailing Wage Rates - Skilled Crafts

Details				
Union	Change#	Craft	Effective Date	Posted Date
Operating Engineers Local 66 Building & VehWty	LCN01-2026ib	Operating Engineer	06/01/2026	05/27/2026

Wage Rates											
Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Operator Class 1	\$41.42	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$66.78	\$87.49
Group 2	\$35.65	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$61.01	\$78.83
Group 3	\$32.36	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$57.72	\$73.90
Group 4	\$29.53	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$54.89	\$69.66
Group 5	\$41.69	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$67.05	\$87.89
Group 6	\$42.42	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$67.78	\$88.99
Group 7	\$43.42	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$68.78	\$90.49
Group 8	\$44.72	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$70.08	\$92.44
Group 9	\$45.42	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$70.78	\$93.49
Group 10	\$46.42	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$71.78	\$94.99
Group 11	\$41.92	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$67.28	\$88.24

Special Calculation Note

Other: Benefit Fund

For Apprentice Calculations please use the following wage reductions for the appropriate classifications worked:
 1st year: \$4.00 less than Journeyman Rate of each Classification used plus full fringes
 2nd year: \$3.50 less than Journeyman Rate of each Classification used plus full fringes
 3rd year: \$2.50 less than Journeyman Rate of each Classification used plus full fringes
 4th year: \$2.00 less than Journeyman Rate of each Classification used plus full fringes

NOTE: IN ADDITION TO THE APPRENTICE WAGE RATES & FULL FRINGES THE EMPLOYER SHALL PAY 1.00 PER HOUR ADDITIONAL FOR APPRENTICESHIP TRAINING FOR EACH APPRENTICE HOUR WORKED.

Ratio

5 Operating Engineers to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Group 1 - Asphalt Heater Planer; Excavators (all types) Back Hoe (all types); Back Hoe with Shear Attachment; Batch Plant (Central Mix Concrete) ; Batch Plant (portable Concrete); Berm Builder (automatic); Backfiller with drag attachment; Boat Derrick; Boat (tug); Boom Truck; Boring Machine (when attached to tractor); Bulldozer; CMI; Road Builders or similar types; Cable Placer & Layer ;Carrier (Straddle); Chicago Boom; Compactor with blade attached; Concrete Pump; Concrete Saw Veneer or similar type; Concrete Spreader Finisher; Combination (Bidwell Machine); Crane (Electric Overhead,Rough Terrain,Truck,Tower); Derricks (boom,car);Diggers-Wheel (not Trencher or Road Widener); Double Nine; Drag Line; Dredge; Drill-Kennyor similar type; Easy Pour Median Barrier Machine(or similar type); Electromatic; Environmental Maintenance Mechanic; Frankie Pile; Gradall; Grader; Gurry; Gurry (self propelled);Heavy Equipment Robotics Operator/Mechanic;Hoist - Monorail;Hoist-Stationary & Mobile Tractor; Hoist - Two or three drum;Horizontal Directional Drill Operator; Jackall; Jumbo Machine; Kocal or Kuhlman; Land/Seagoing Vehicle; Loader-Elevating;Loader-Front End;Loader-Skid Steer; Locomotive;Mechanic;Mechanic as Welder;Metro Chip Harvester with Boom;Mucking Machine;Paver-Asphalt;Paver-Road Concrete; Paver-Slip Form (C.M.I. or similar type);Post Driver (Carrier Mounted);Power Driven Hydraulic Pumps & Jacks (When used in Slip Form or Lift Slab Construction); Quick Change Barrier Machine;Regulator-Ballast; Rigs-Drilling; Roto Mill (or similar);Scraper/Pan;Shovel;Shuttle Buggy;Side Boom;Slip Form Curb Machine; Speedswing; Spikemaster; Stonecrusher; Tie Puller;Tie Tamper(Single or Multihead); Tire Truck(Assigned to job);Tractor-Double Boom;Tractor with Attachment;Trenching Machine; Tunnel Machine(Mark 21 Java or similar type); Whirley (Or Similar Type);

Group 2 - Asphalt Plant;Bending Machine(Pipeline or Similar type);Boring Machine (Motor Driven);Chip Harvester(Without Boom);Cleaning Machine(Pipeline Type);Coating Machine (Pipeline Type);Compactor;Concrete Belt Placer;Concrete Finisher;Concrete Planer or Asphalt;Concrete Spreader;Elevator;Fork Lift (Home building only);Fork Lift Walk Behind (Hoisting over one buck high);Form Line Machine;Grease Truck Operator;Grout Pump; Gunnite Machine;Horizontal Directional Drill Locator;Huck Bolting Machine;Hydraulic Scaffold (Hoisting building Materials);Paving Breaker (Self-Propelled or Ridden);Pipe Dream;Pot Fireman (Power Agitated)Refrigeration Plant;Road Widener; Roller; Sasgen Derrick;Seeding Machine;Single Drum Hoist (With or Without Tower);Soil Stabilizer (Pump Type);Spray Cure Machine (Self-Propelled);Straw Blower Machine;Sub-Grader;Tube Finisher or Broom (C->M>I> or similar type);Tugger Hoist ;Fork-lifts and Lulls.

Group 3 - Air Curtain Destructor (Or similar Type);Batch Plant-Job Related;Boiler Operator;Compressor;Conveyor;Curb Builder (Self Propelled);Drill Wagon;Generator Sets;Generator- Steam;Heaters-Portable Power;Hydraulic Manipulator Crane;Hydraulic Power Unit (Not attached to rig for Pile driving Operation);Jacks-Hydraulic (Power Driven);Jacks-Hydraulic (Railroad); Ladavator; Minor Machine Operator;Mixer-Concrete;Mulching Machine;Pin Puller;Power Boom;Pulverizer;Pump (Water or Similar);Road Finishing machine (Pull Type);Saw-Concrete (Self Propelled Highway Work);Signal Man;Spray Cure Machine (Motor-Powered);Steam Jenny;Stump Cutter;Syphons;Tractor;Trencher-Form;Vibrator-Gasoline;Water Blaster;Welding Machine;

Group 4 - Brakeman;Deck Hand;Fireman;Mechanics Helper;Oilier; 2nd Helper Operator on Excavators over 140,000 pounds and Cranes: All tower cranes and Hydraulic Cranes, Truck cranes, on tracks and rough terrain with a capacity over 50 tons.

Group 5- Pile Driving Operation

Group 5 thru 10- Cranes rated two hundred (200) ton or over shall receive an additional wage rate of one dollar (\$1.00) per hour.

Group 6- 100 Feet to 150 Feet Boom & Jib Combination

Group 7- 151 Feet to 200 Feet Boom & Jib Combination

Group 8- 201 Feet to 250 Feet Boom & Jib Combination

Group 9- 251 Feet to 300 Feet Boom & Jib Combination

Group 10- 301- Feet to 350 Feet Boom & Jib Combination

Group 11- Lead Engineer Note:

Prevailing Wage Rates - Skilled Crafts

Details		Change#	Craft	Effective Date	Posted Date
Union	Operating Engineers Local 66 Building & Hwy Levels A & B Asbestos Abatement & Hazardous Waste	LCN01-2026ib	Operating Engineer	06/01/2026	05/27/2026

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Operator Asbestos Hazardous Waste Group 1	\$49.70	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$75.06	\$99.91
Group 2	\$42.78	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$68.14	\$89.53
Group 3	\$38.83	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$64.19	\$83.60
Group 4	\$35.44	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$60.80	\$78.52
Group 5	\$50.03	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$75.39	\$100.41
Group 6	\$50.90	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$76.26	\$101.71
Group 7	\$52.10	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$77.46	\$103.51
Group 8	\$53.30	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$78.66	\$105.31
Group 9	\$54.50	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$79.86	\$107.11
Group 10	\$55.70	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$81.06	\$108.91
Group 11	\$50.30	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$75.66	\$100.81

Special Calculation Note
 Other: Benefit Fund

For Apprentice Calculations please use the following wage reductions for the appropriate classifications worked:
 1st year \$4.00 less than Journeyman Rate of each Classification used plus full fringes
 2nd year \$3.50 less than Journeyman Rate of each Classification used plus full fringes
 3rd year \$2.50 less than Journeyman Rate of each Classification used plus full fringes
 4th year \$2.00 less than Journeyman Rate of each Classification used plus full fringes

NOTE: IN ADDITION TO THE APPRENTICE WAGE RATES & FULL FRINGES THE EMPLOYER SHALL PAY 1.00 PER HOUR ADDITIONAL FOR APPRENTICESHIP TRAINING FOR EACH APPRENTICE HOUR WORKED.

Ratio
 5 Operating Engineers to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)
 Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Group 1 - Asphalt Heater Planer; Excavators (all types) Back Hoe (all types); Back Hoe with Shear Attachment; Batch Plant (Central Mix Concrete); Batch Plant (portable Concrete); Berm Builder (automatic); Backfiller with drag attachment; Boat Derrick; Boat (tug); Boom Truck; Boring Machine (when attached to tractor); Bullclam; Bulldozer; CM; Road Builders or similar types; Cable Placer & Layer; Carrier (Straddle); Chicago Boom; Compactor with blade attached; Concrete Pump; Concrete Saw Veneer or similar type; Concrete Spreader Finisher; Combination (Bidwell Machine); Crane (Electric Overhead, Rough Terrain, Truck, Tower); Derricks (boom car); Diggers-Wheel (not Trencher or Road Widener); Double Nine; Drag Line; Dredge; Drill-Kennyor similar type; Easy Pour Median Barrier Machine (or similar type); Electromatic; Environmental Maintenance Mechanic; Frankie Pile; Gradall; Grader; Gurry; Gurry (self propelled); Heavy Equipment Robotics Operator/Mechanic; Hoist - Monorail; Hoist-Stationary & Mobile Tractor; Hoist - Two or three drum; Horizontal Directional Drill Operator; Jackall; Jumbo Machine; Kocal or Kuhlman; Land/Seagoing Vehicle; Loader-Elevating; Loader-Front End; Loader-Skid Steer; Locomotive; Mechanic; Mechanic as Welder; Metro Chip Harvester with Boom; Mucking Machine; Paver-Asphalt; Paver-Road Concrete; Paver-Slip Form (C.M.I. or similar type); Post Driver (Carrier Mounted); Power Driven Hydraulic Pumps & Jacks (When used in Slip Form or Lift Slab Construction); Quick Change Barrier Machine; Regulator-Ballast; Rigs-Drilling; Roto Mill (or similar); Scraper/Pan; Shovel; Shuttle Buggy; Side Boom; Slip Form Curb Machine; Speedswing; Spikemaster; Stonecrusher; Tie Puller; Tie Tamper (Single or Multihead); Tire Truck (Assigned to job); Tractor-Double Boom; Tractor with Attachment; Trenching Machine; Tunnel Machine (Mark 21 Java or similar type); Whirley (Or Similar Type);

Group 2 - Asphalt Plant; Bending Machine (Pipeline or Similar type); Boring Machine (Motor Driven); Chip Harvester (Without Boom); Cleaning Machine (Pipeline Type); Coating Machine (Pipeline Type); Compactor; Concrete Belt Placer; Concrete Finisher; Concrete Planer or Asphalt; Concrete Spreader; Elevator; Fork Lift (Home building only); Fork Lift Walk Behind (Hoisting over one buck high); Form Line Machine; Grease Truck Operator; Grout Pump; Gunnite Machine; Horizontal Directional Drill Locator; Huck Bolting Machine; Hydraulic Scaffold (Hoisting building Materials); Paving Breaker (Self-Propelled or Ridden); Pipe Dream; Pot Fireman (Power Agitated); Refrigeration Plant; Road Widener; Roller; Sasgen Derrick; Seeding Machine; Single Drum Hoist (With or Without Tower); Soil Stabilizer (Pump Type); Spray Cure Machine (Self-Propelled); Straw Blower Machine; Sub-Grader; Tube Finisher or Broom (C>M>I) or similar type); Tugger; Hoist Forklifts and Lulls;

Group 3 - Air Curtain Destructor (Or similar Type); Batch Plant-Job Related; Boiler Operator; Compressor; Conveyor; Curb Builder (Self Propelled); Drill Wagon; Generator Sets; Generator-Steam; Heaters-Portable Power; Hydraulic Manipulator Crane; Hydraulic Power Unit (Not attached to rig for Pile driving Operation); Jacks-Hydraulic (Power Driven); Jacks-Hydraulic (Railroad); Ladavator; Minor Machine Operator; Mixer-Concrete; Mulching Machine; Pin Puller; Power Boom; Pulverizer; Pump (Water or Similar); Road Finishing machine (Pull Type); Saw-Concrete (Self Propelled Highway Work); Signal Man; Spray Cure Machine (Motor-Powered); Steam Jenny; Stump Cutter; Syphons; Tractor; Trencher-Form; Vibrator-Gasoline; Water Blaster; Welding Machine;

Group 4 - Brakeman; Deck Hand; Fireman; Mechanics Helper; Oiler; 2nd Helper Operator on Excavators over 140,000 pounds and Cranes: All tower cranes and Hydraulic Cranes, Truck cranes, on tracks and rough terrain with a capacity over 50 tons.

Group 5 - Pile Driving Operation

Group 5 thru 10- Cranes rated two hundred (200) ton or over shall receive an additional wage rate of one dollar (\$1.00) per hour.

Group 6- 100 Feet to 150 Feet Boom & Jib Combination

Group 7- 151 Feet to 200 Feet Boom & Jib Combination

Group 8- 201 Feet to 250 Feet Boom & Jib Combination

Group 9- 251 Feet to 300 Feet Boom & Jib Combination

Group 10- 301- Feet to 350 Feet Boom & Jib Combination

Group 11- Lead Engineer Note: CLASS A: POSITIVE PRESSURE, FULL FACE PIECE SELF - CONTAINED BREATHING APPARATUS (SCBA) & TOTALLY-ENCAPSULATING CHEMICAL- PROTECTIVE SUIT. CLASS B: POSITIVE PRESSURE, FULL FACE-PIECE SELF- CONTAINED BREATHING APPARATUS (SCBA) & HOODED CHEMICAL-RESISTANT CLOTHING.

Prevailing Wage Rates - Skilled Crafts

Details		Change#	Craft	Effective Date	Posted Date
Union	Operating Engineers Local 66 Building & Hwy Levels C & D Hazardous Waste	LCN01-2026ib	Operating Engineer	06/01/2026	05/27/2026

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Operator Asbestos Hazardous Waste Group 1	\$45.56	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$70.92	\$93.70
Group 2	\$39.22	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$64.58	\$84.19
Group 3	\$35.60	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$60.96	\$78.76
Group 4	\$32.48	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$57.84	\$74.08
Group 5	\$45.86	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$71.22	\$94.15
Group 6	\$46.66	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$72.02	\$95.35
Group 7	\$47.76	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$73.12	\$97.00
Group 8	\$48.86	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$74.22	\$98.65
Group 9	\$49.96	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$75.32	\$100.30
Group 10	\$51.06	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$76.42	\$101.95
Group 11	\$46.11	\$10.75	\$8.45	\$0.81	\$0.00	\$5.25	\$0.10	\$0.00	\$0.00	\$71.47	\$94.52

Special Calculation Note
 Other: Benefit Fund

For Apprentice Calculations please use the following wage reductions for the appropriate classifications worked:
 1st year: \$4.00 less than Journeyman Rate of each Classification used plus full fringes
 2nd year: \$3.50 less than Journeyman Rate of each Classification used plus full fringes
 3rd year: \$2.50 less than Journeyman Rate of each Classification used plus full fringes
 4th year: \$2.00 less than Journeyman Rate of each Classification used plus full fringes

NOTE: IN ADDITION TO THE APPRENTICE WAGE RATES & FULL FRINGES THE EMPLOYER SHALL PAY 1.00 PER HOUR ADDITIONAL FOR APPRENTICESHIP TRAINING FOR EACH APPRENTICE HOUR WORKED.

Ratio
 5 Operating Engineers to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)
 Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Group 1 - Asphalt Heater Planer; Excavators (all types) Back Hoe (all types); Back Hoe with Shear Attachment; Batch Plant (Central Mix Concrete); Batch Plant (portable Concrete); Berm Builder (automatic); Backfiller with drag attachment; Boat Derrick; Boat (tug); Boom Truck; Boring Machine (when attached to tractor); Bullclam; Bulldozer; CM; Road Builders or similar types; Cable Placer & Layer; Carrier (Straddle); Chicago Boom; Compactor with blade attached; Concrete Pump; Concrete Saw Veneer or similar type; Concrete Spreader Finisher; Combination (Bidwell Machine); Crane (Electric Overhead, Rough Terrain, Truck, Tower); Derricks (boom car); Diggers-Wheel (not Trencher or Road Widener); Double Nine; Drag Line; Dredge; Drill-Kennyor similar type; Easy Pour Median Barrier Machine (or similar type); Electromatic; Environmental Maintenance Mechanic; Frankie Pile; Gradall; Grader; Gurry; Gurry (self propelled); Heavy Equipment Robotics Operator; Mechanic; Hoist - Monorail; Hoist-Stationary & Mobile Tractor; Hoist - Two or three drum; Horizontal Directional Drill Operator; Jackall; Jumbo Machine; Kocal or Kuhlman; Land/Seagoing Vehicle; Loader-Elevating; Loader-Front End; Loader-Skid Steer; Locomotive; Mechanic; Mechanic as Welder; Metro Chip Harvester with Boom; Mucking Machine; Paver-Asphalt; Paver-Road Concrete; Paver-Slip Form (C.M.I. or similar type); Post Driver (Carrier Mounted); Power Driven Hydraulic Pumps & Jacks (When used in Slip Form or Lift Slab Construction); Quick Change Barrier Machine; Regulator-Ballast; Rigs-Drilling; Roto Mill (or similar); Scraper; Pan; Shovel; Shuttle Buggy; Side Boom; Slip Form Curb Machine; Speedswing; Spikemaster; Stonecrusher; Tie Puller; Tie Tamper (Single or Multihead); Tire Truck (Assigned to job); Tractor-Double Boom; Tractor with Attachment; Trenching Machine; Tunnel Machine (Mark 21 Java or similar type); Whirley (Or Similar Type);

Group 2 - Asphalt Plant; Bending Machine (Pipeline or Similar type); Boring Machine (Motor Driven); Chip Harvester (Without Boom); Cleaning Machine (Pipeline Type); Coating Machine (Pipeline Type); Compactor; Concrete Belt Placer; Concrete Finisher; Concrete Planer or Asphalt; Concrete Spreader; Elevator; Fork Lift (Home building only); Fork Lift Walk Behind (Hoisting over one buck high); Form Line Machine; Grease Truck Operator; Grout Pump; Gunnite Machine; Horizontal Directional Drill Locator; Huck Bolting Machine; Hydraulic Scaffold (Hoisting building Materials); Paving Breaker (Self-Propelled or Ridden); Pipe Dream; Pot Fireman (Power Agitated); Refrigeration Plant; Road Widener; Roller; Sasgen Derrick; Seeding Machine; Single Drum Hoist (With or Without Tower); Soil Stabilizer (Pump Type); Spray Cure Machine (Self-Propelled); Straw Blower Machine; Sub-Grader; Tube Finisher or Broom (>M>I> or similar type); Tugger Hoist; Fork-lifts and Lulls;

Group 3 - Air Curtain Destructor (Or similar Type); Batch Plant-Job Related; Boiler Operator; Compressor; Conveyor; Curb Builder (Self Propelled); Drill Wagon; Generator Sets; Generator-Steam; Heaters-Portable Power; Hydraulic Manipulator Crane; Hydraulic Power Unit (Not attached to rig for Pile driving Operation); Jacks-Hydraulic (Power Driven); Jacks-Hydraulic (Railroad); Ladavator; Minor Machine Operator; Mixer-Concrete; Mulching Machine; Pin Puller; Power Boom; Pulverizer; Pump (Water or Similar); Road Finishing machine (Pull Type); Saw-Concrete (Self Propelled Highway Work); Signal Man; Spray Cure Machine (Motor-Powered); Steam Jenny; Stump Cutter; Syphons; Tractor; Trencher-Form; Vibrator-Gasoline; Water Blaster; Welding Machine;

Group 4 - Brakeman; Deck Hand; Fireman; Mechanics Helper; Oiler; 2nd Helper Operator on Excavators over 140,000 pounds and Cranes: All tower cranes and Hydraulic Cranes, Truck cranes, on tracks and rough terrain with a capacity over 50 tons.

Group 5 - Pile Driving Operation

Group 5 thru 10- Cranes rated two hundred (200) ton or over shall receive an additional wage rate of one dollar (\$1.00) per hour.

Group 6- 100 Feet to 150 Feet Boom & Jib Combination

Group 7- 151 Feet to 200 Feet Boom & Jib Combination

Group 8- 201 Feet to 250 Feet Boom & Jib Combination

Group 9- 251 Feet to 300 Feet Boom & Jib Combination

Group 10- 301- Feet to 350 Feet Boom & Jib Combination

Group 11- Lead Engineer Note: CLASS C: FULL-FACE OR HALF -MASK, AIR PURIFYING RESPIRATORS (NIOSH APPROVED) & HOODED CHEMICAL-RESISTANT CLOTHING CLASS D: A WORK UNIFORM AFFORDING MINIMAL PROTECTION: USED FOR NUISANCE CONTAMINATION ONLY.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 476	LCN01-2026ib	Painter	06/01/2026	05/27/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Painter/ Wallpaper Hanger	\$32.14	\$8.77	\$7.69	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$0.00	\$51.40	\$67.47
Apprentice	Percent	BHR									
1st Year	65.000000	\$20.89	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$32.97	\$43.41
2nd Year	75.000000	\$24.11	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$36.19	\$48.24
3rd Year	80.000000	\$25.71	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$37.79	\$50.64
4th Year	90.000000	\$28.93	\$8.77	\$7.69	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$48.19	\$62.66

Special Calculation Note

Added to base painter rate:
 Spraying all surfaces: \$0.50
 Working above 50 feet: \$0.65
 Swing Stage: \$0.65

Ratio

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 476 Bridge Painter & Hwy Hwy	LCN01-2026ib	Painter	06/01/2026	05/27/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Class 1: Bridge Blaster	\$41.77	\$8.77	\$7.69	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$0.00	\$61.03	\$81.92
Class 2: Bridge Painter, Rigger, Containment Builder, Spot Blaster	\$36.77	\$8.77	\$7.69	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$0.00	\$56.03	\$74.42
Class 3: Equipment Operator/Field Mechanic, Grit Reclamation, Paint Mixer, Traffic Control, Boat Person, Diver	\$34.77	\$8.77	\$7.69	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$0.00	\$54.03	\$71.42
Apprentice	Percent	BHR									
1st Year	65.000000	\$27.15	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$39.23	\$52.80
2nd Year	75.000000	\$31.33	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$43.41	\$59.07
3rd Year	85.000000	\$35.50	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$47.58	\$65.33

Special Calculation Note

Apprentice pay based on percentage of above appropriate classification.

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Class 1: Abrasive Blasting of any kind. Bridge painting, coating application of any kind. All steel surface preparation other than abrasive blasting. All necessary rigging and containment building. All remedial/ spot blasting.

Class 2: Tend to all equipment including but not limited to abrasive blasting, power washing, spray painting, forklifts, hoists, trucks, etc. Load and unload trucks, handle materials, man safety boats, handle traffic control, clean up/ vacuum abrasive blast materials and related tasks. All aspects of concrete coating, sealing including but not limited to preparation, containment, etc.

Class 3: Verify and record that all work is completed according to job specification. Assure that all health and safety standards are adhered to. Assure all traffic is safely handled.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 476 Industrial	LCN01-2026ib	Painter	06/01/2026	05/27/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Painter	\$34.14	\$8.77	\$7.69	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$0.00	\$53.40	\$70.47
Apprentice	Percent	BHR									
1st Year	65.000000	\$22.19	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$34.27	\$45.37
2nd Year	75.000000	\$25.61	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$37.69	\$50.49
3rd Year	80.000000	\$27.31	\$8.77	\$0.51	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$39.39	\$53.04
4th Year	90.000000	\$30.73	\$8.77	\$7.69	\$0.45	\$0.00	\$2.35	\$0.00	\$0.00	\$49.99	\$65.36

Special Calculation Note

Added to base painter rate:
 Spraying all surfaces: \$0.50
 Working above 50 feet: \$0.65
 Swing Stage: \$0.65

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Industrial work includes: Structural Steel, Tanks/Sandblasting, Elevated Water Storage Tanks, Towers I Stacks, Power plants, Steel Mills, Paper Mills, Water Treatment Plants, and Automobile Plants

*** Offices, restrooms, employee breakrooms, cafeterias, locker-rooms and similar types of areas within the above projects will be classified as Commercial Painter Rate

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 639 Sign and Display	LCN01-2025ib	Painter	06/18/2025	06/18/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Top Mechanic Class A	\$27.53	\$4.50	\$0.00	\$0.00	\$0.00	\$0.00	\$1.45	\$0.00	\$0.00	\$33.48	\$47.25
Top Mechanic Class B	\$27.53	\$4.50	\$0.75	\$0.00	\$0.53	\$0.00	\$1.45	\$0.00	\$0.00	\$34.76	\$48.53
Top Helper Class A	\$22.33	\$4.50	\$0.00	\$0.00	\$0.00	\$0.00	\$1.20	\$0.00	\$0.00	\$28.03	\$39.20
Top Helper Class B	\$22.33	\$4.50	\$0.75	\$0.00	\$0.43	\$0.00	\$1.20	\$0.00	\$0.00	\$29.21	\$40.38
Helper Class A	\$17.19	\$4.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.90	\$0.00	\$0.00	\$22.59	\$31.19
Helper Class B	\$17.19	\$4.50	\$0.75	\$0.00	\$0.30	\$0.00	\$0.90	\$0.00	\$0.00	\$23.64	\$32.24
New Hire (90 Days)	\$15.75	\$4.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.55	\$0.00	\$0.00	\$20.80	\$28.68

Special Calculation Note

Other: Sick, Personal & Holiday Pay Swing Stage Rate: Employees shall receive a differential of \$1.50 per hour for all hours worked on scaffolds four sections or higher, including any boom lifts and swing stage scaffolds. In addition, the rigging and derigging of hanging/suspended swing stage systems and rappelling/bolson chair work of a single employee will qualify for \$1.50 differential, will be paid to a single lead Top Mechanic or single lead Top Helper on any given swing stage job, even when it includes multiple running rigs on a single jobsite.

Ratio

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Geauga, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lake, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

Special Jurisdictional Note

Details

The work performed by employees covered by this rate shall include cleaning and refinishing of architectural metals using chemicals, solvents, coatings and hand-applied lacquer thinner, removing scratches from mirror finished metals, burnishing of bronze, statuary finishes on exterior and interior surfaces during the course of the restoration and maintenance of architectural metals, and other specialty metal finishing work, and the use of all tools required to perform such work, including but not limited to polishes, spray equipment and scaffolding. Class A: Less Than 1 Year of Service Class B: More Than 1 Year of Service Top Mechanic: Top Mechanic shall be responsible for ensuring the highest quality of workmanship by Helpers, and be highly competent and knowledgeable in the following areas: coatings, both solvent and waterborne, spraying ability, stainless steel, aluminum and bronze finishing, scaffolding and swing stage work. The Top Mechanic shall also be responsible for providing necessary training of employees in lower classifications and for directing all employees in his/her crew to perform their responsibilities in a productive and efficient manner. Top Helper: For existing Top Helpers at the time of this Agreement shall, in addition to performing the responsibilities of a Helper, be responsible and accountable for the setup, breakdown, safety and quality of the Company's product. Helper: A Helper shall be responsible for performing tasks in refinishing, compliance with safety procedures, setting up and breaking down job sites, setting up and breaking down scaffolding and swing stages, preparing surfaces for refinishing, including but not limited to masking and stripping, cleaning, oxidizing, polishing and scratch removal on various finishes.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Painter Local 639 Zone 2 Sign	LCN01-2025ib	Painter	05/28/2025	05/28/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Painter Sign Journeyman Tech/Team Leader Class A	\$26.56	\$3.36	\$0.21	\$0.00	\$0.00	\$0.00	\$0.72	\$0.00	\$0.00	\$30.85	\$44.13
Painter Sign Journeyman Tech/Team Leader Class B	\$26.56	\$3.36	\$0.21	\$0.00	\$0.51	\$0.00	\$0.72	\$0.00	\$0.00	\$31.36	\$44.64
Painter Sign Journeyman Tech/Team Leader Class C	\$26.56	\$3.36	\$0.21	\$0.00	\$1.02	\$0.00	\$0.72	\$0.00	\$0.00	\$31.87	\$45.15
Painter Sign Journeyman Tech/Team Leader Class D	\$26.56	\$3.36	\$0.21	\$0.00	\$1.53	\$0.00	\$0.72	\$0.00	\$0.00	\$32.38	\$45.66
Sign Journeyman Class A	\$26.27	\$3.36	\$0.21	\$0.00	\$0.00	\$0.00	\$0.71	\$0.00	\$0.00	\$30.55	\$43.69
Sign Journeyman Class B	\$26.27	\$3.36	\$0.21	\$0.00	\$0.51	\$0.00	\$0.71	\$0.00	\$0.00	\$31.06	\$44.20
Sign Journeyman Class C	\$26.27	\$3.36	\$0.21	\$0.00	\$1.01	\$0.00	\$0.71	\$0.00	\$0.00	\$31.56	\$44.70
Sign Journeyman Class D	\$26.27	\$3.36	\$0.21	\$0.00	\$1.52	\$0.00	\$0.71	\$0.00	\$0.00	\$32.07	\$45.21
Tech Sign Fabrication/ Erector Class A	\$20.67	\$3.36	\$0.21	\$0.00	\$0.00	\$0.00	\$0.56	\$0.00	\$0.00	\$24.80	\$35.14
Tech Sign Fabrication/ Erector Class B	\$20.67	\$3.36	\$0.21	\$0.00	\$0.40	\$0.00	\$0.56	\$0.00	\$0.00	\$25.20	\$35.54
Tech Sign Fabrication/ Erector Class C	\$20.67	\$3.36	\$0.21	\$0.00	\$0.80	\$0.00	\$0.56	\$0.00	\$0.00	\$25.60	\$35.94
Tech Sign Fabrication/ Erector Class D	\$20.67	\$3.36	\$0.21	\$0.00	\$1.19	\$0.00	\$0.56	\$0.00	\$0.00	\$25.99	\$36.33

Special Calculation Note

Other is for paid holidays.

Ratio

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Auglaize, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Greene, Hamilton, Hancock, Hardin, Henry, Highland, Holmes, Huron, Jackson, Knox, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Mercer, Miami, Montgomery, Morrow, Muskingum, Ottawa, Paulding, Perry, Pickaway, Pike, Preble, Putnam, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Trumbull, Tuscarawas, Union, Van Wert, Warren, Wayne, Williams, Wood, Wyandot

Special Jurisdictional Note

Details

Class A: less that 1 year. Class B: 1-3 years. Class C; 3-10 years. Class D: More than 10 years.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Plasterer Local 179	LCN01-2023ib	Plasterer	06/21/2023	06/21/2023

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Plasterer	\$28.17	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$47.15	\$61.24	
Apprentices	Percent	BHR										
0-1,350 hrs	55.000000	\$15.49	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$34.47	\$42.22
1,351-2,700hrs	70.000000	\$19.72	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$38.70	\$48.56
2701-4,050hrs	80.000000	\$22.54	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$41.52	\$52.78
4,051-5,400hrs	90.000000	\$25.35	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$44.33	\$57.01

Special Calculation Note

Other is for International Training Fund.

Ratio

4 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Plasterer Local 179 Light Commercial EIFS	LCN01-2023ib	Plasterer	06/21/2023	06/21/2023

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Plasterer	\$25.72	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$44.70	\$57.56	
Apprentice	Percent	BHR										
0-1,350hrs	55.000000	\$14.15	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$33.13	\$40.20
1,351-2,700hrs	70.000000	\$18.00	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$36.98	\$45.99
2,701-4,050hrs	80.000000	\$20.58	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$39.56	\$49.84
4,051-5,400hrs	90.000000	\$23.15	\$10.65	\$3.43	\$0.20	\$0.00	\$4.65	\$0.05	\$0.00	\$0.00	\$42.13	\$53.70

Special Calculation Note

Other is for International Training Fund.

Ratio

4 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Light Commercial EIFS Work is defined as EIFS work on-retail establishments such as strip malls, restaurants, pharmacies, truck stops, gas stations, and EIFS work of professional buildings such as physician's offices, hospitals, nursing homes and EIFS work on churches

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Plumber Pipefitter Local 396	LCN01-2026ib	Plumber Pipefitter	06/01/2026	05/27/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Plumber Pipefitter	\$42.55	\$10.56	\$11.75	\$1.10	\$0.00	\$4.85	\$0.00	\$0.00	\$0.00	\$70.81	\$92.09
Apprentice	Percent	BHR									
1st Year	44.790000	\$19.06	\$9.30	\$0.00	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$28.61	\$38.14
2nd Year	49.640000	\$21.12	\$9.80	\$5.25	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$36.42	\$46.98
3rd Year	57.980000	\$24.67	\$9.80	\$6.25	\$1.10	\$1.25	\$0.00	\$0.00	\$0.00	\$43.07	\$55.41
4th Year	73.490000	\$31.27	\$9.80	\$7.25	\$1.10	\$1.60	\$0.00	\$0.00	\$0.00	\$51.02	\$66.66
5th Year	83.360000	\$35.47	\$9.80	\$8.25	\$1.10	\$1.90	\$0.00	\$0.00	\$0.00	\$56.52	\$74.25

Special Calculation Note

Ratio

- 1 Journeyman to 2 Apprentices
- 2 Journeymen to 3 Apprentices
- 7 Journeymen to 4 Apprentices

Jurisdiction (* denotes special jurisdictional note)

Columbiana*, Mahoning, Trumbull

Special Jurisdictional Note

In Columbiana County the following townships are EXCLUDED (Washington Township, Yellow Creek Township, and the portion of Liverpool Twp known as Section 36 West of County Road No 427)

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Roofer Local 71	LCN01-2025ib	Roofer	05/21/2025	05/21/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Roofer	\$30.31	\$8.69	\$10.18	\$0.43	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$49.68	\$64.84	
Apprentice	Percent	BHR										
1st 1500 hrs	65.000000	\$19.70	\$2.25	\$0.00	\$0.43	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$22.45	\$32.30
2nd 1500 hrs	70.000000	\$21.22	\$8.69	\$0.00	\$0.43	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$30.41	\$41.02
3rd 1500 hrs	80.000000	\$24.25	\$8.69	\$0.00	\$0.43	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$33.44	\$45.56
4th 1500 hrs	90.000000	\$27.28	\$8.69	\$8.55	\$0.43	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$45.02	\$58.66

Special Calculation Note

Ratio

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Sheet Metal Local 33 (Youngstown)	LCN01-2025ib	Sheet Metal Worker	06/02/2025	05/28/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Sheet Metal Worker	\$38.36	\$10.03	\$12.82	\$1.11	\$0.00	\$5.71	\$0.00	\$0.00	\$0.00	\$68.03	\$87.21
Apprentice	Percent	BHR									
1st year	50.000000	\$19.18	\$9.58	\$1.68	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00	\$30.63	\$40.22
2nd year	60.000000	\$23.02	\$9.58	\$4.78	\$1.10	\$0.00	\$1.43	\$0.00	\$0.00	\$39.91	\$51.41
3rd year	65.000000	\$24.93	\$9.58	\$4.78	\$1.10	\$0.00	\$1.43	\$0.00	\$0.00	\$41.82	\$54.29
4th year	70.000000	\$26.85	\$9.58	\$4.78	\$1.10	\$0.00	\$2.86	\$0.00	\$0.00	\$45.17	\$58.60

Special Calculation Note

No special calculations for this skilled craft wage rate are required at this time.

Ratio

2 Journeymen to 1 Apprentice 4 Journeymen to 2 Apprentice 7 Journeymen to 3 Apprentice then 3 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note)

Columbiana, Mahoning, Trumbull

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Sheet Metal Local 33 Industrial Door	LCN01-2025ib	Sheet Metal Worker	08/01/2025	07/30/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate	
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)			
Sheet Metal Worker	\$26.53	\$8.71	\$5.66	\$0.19	\$0.00	\$2.61	\$0.61	\$0.00	\$0.00	\$44.31	\$57.58	
Trainees	Percent	BHR										
Probationary Period (60 Days)	52.000000	\$13.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13.80	\$20.70	
61st day -12 months	58.000000	\$15.39	\$8.71	\$1.96	\$0.19	\$0.00	\$1.68	\$0.35	\$0.00	\$0.00	\$28.28	\$35.98
2nd Year	68.000000	\$18.04	\$8.71	\$1.96	\$0.19	\$0.00	\$1.90	\$0.41	\$0.00	\$0.00	\$31.21	\$40.23
3rd Year	73.000000	\$19.37	\$8.71	\$1.96	\$0.19	\$0.00	\$2.05	\$0.45	\$0.00	\$0.00	\$32.73	\$42.41
4th Year	80.000000	\$21.22	\$8.71	\$1.96	\$0.19	\$0.00	\$2.17	\$0.49	\$0.00	\$0.00	\$34.74	\$45.35
5th Year	86.000000	\$22.82	\$8.71	\$1.96	\$0.19	\$0.00	\$2.31	\$0.52	\$0.00	\$0.00	\$36.51	\$47.92

Special Calculation Note

Other: Holiday Pay

Ratio

1-2 Journeyman to 1 Trainee
 3-4 Journeymen to 2 Trainee
 5-6 Journeymen to 3 Trainees
 7-8 Journeymen to 4 Trainees
 9-10 Journeymen to 5 Trainees
 11-13 Journeymen to 6 Trainees
 14-16 Journeymen to 7 Trainees
 17-19 Journeymen to 8 Trainees
 Maintaining a 3 Journeymen to 1 Trainee ratio thereafter

Jurisdiction (* denotes special jurisdictional note)

Ashland, Ashtabula, Carroll, Columbiana, Coshocton, Crawford, Cuyahoga, Defiance, Erie, Fulton, Geauga, Hancock, Henry, Holmes, Huron, Lake, Lorain, Lucas, Mahoning, Medina, Ottawa, Paulding, Portage, Putnam, Richland, Sandusky, Seneca, Stark, Summit, Trumbull, Tuscarawas, Wayne, Williams, Wood

Special Jurisdictional Note

Details

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Sprinkler Fitter Local 669	LCR01-2025ib	Sprinkler Fitter	08/06/2025	08/06/2025

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Sprinkler Fitter	\$48.28	\$12.40	\$7.40	\$0.54	\$0.00	\$7.74	\$0.00	\$0.00	\$0.00	\$76.36	\$100.50
Apprentice	Percent	BHR									
CLASS 1	50.000000	\$24.14	\$9.03	\$0.00	\$0.54	\$0.00	\$0.00	\$0.00	\$0.00	\$33.71	\$45.78
CLASS 2	56.000000	\$27.04	\$9.03	\$0.00	\$0.54	\$0.00	\$0.00	\$0.00	\$0.00	\$36.61	\$50.13
CLASS 3	61.000000	\$29.45	\$12.40	\$7.40	\$0.54	\$0.00	\$1.15	\$0.00	\$0.00	\$50.94	\$65.66
CLASS 4	65.000000	\$31.38	\$12.40	\$7.40	\$0.54	\$0.00	\$1.15	\$0.00	\$0.00	\$52.87	\$68.56
CLASS 5	69.000000	\$33.31	\$12.40	\$7.40	\$0.54	\$0.00	\$1.40	\$0.00	\$0.00	\$55.05	\$71.70
CLASS 6	75.000000	\$36.21	\$12.40	\$7.40	\$0.54	\$0.00	\$1.40	\$0.00	\$0.00	\$57.95	\$76.05
CLASS 7	79.000000	\$38.14	\$12.40	\$7.40	\$0.54	\$0.00	\$1.40	\$0.00	\$0.00	\$59.88	\$78.95
CLASS 8	84.000000	\$40.56	\$12.40	\$7.40	\$0.54	\$0.00	\$1.40	\$0.00	\$0.00	\$62.30	\$82.58
CLASS 9	89.000000	\$42.97	\$12.40	\$7.40	\$0.54	\$0.00	\$1.40	\$0.00	\$0.00	\$64.71	\$86.19
CLASS 10	93.000000	\$44.90	\$12.40	\$7.40	\$0.54	\$0.00	\$1.40	\$0.00	\$0.00	\$66.64	\$89.09

Special Calculation Note

Ratio

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

Special Jurisdictional Note

Details

Sprinkler Fitter work shall consist of the installation, dismantling, maintenance, repairs, adjustments, and corrections of all fire protection and fire control systems including the unloading, handling by hand, power equipment and installation of all piping or tubing, appurtenances and equipment pertaining thereto, including both overhead and underground water mains, fire hydrants and hydrant mains, standpipes and hose connections to sprinkler systems used in connection with sprinkler and alarm systems. Also all tanks and pumps connected thereto, also included shall be CO-2 and Cardox Systems, Dry Chemical Systems, Foam Systems and all other fire protection systems.

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Truck Driver Locals 20,40,92,100,175,284,348,377,637,697,9 08,957 - Bldg & HevHwy Class 1	LCN01-2026ib	Truck Driver	05/01/2026	04/29/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Truck Driver CLASS 1	\$34.90	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$55.75	\$73.20
Apprentice	Percent	BHR									
First 6 months	80.000000	\$27.92	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$48.77	\$62.73
7-12 months	85.020000	\$29.67	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$50.52	\$65.36
13-18 months	90.000000	\$31.41	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$52.26	\$67.97
19-24 months	95.020000	\$33.16	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$54.01	\$70.59
25-30 months	100.000000	\$34.90	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$55.75	\$73.20

Special Calculation Note

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

Special Jurisdictional Note

Details

CLASS 1: Drivers on trucks, including but not limited to: 4-wheel service trucks; 4-wheel dump trucks; batch trucks; drivers on tandems; truck sweepers (not to include power sweepers and scrubbers) Drivers on tractor – trailer combinations including but not limited to the following: Semi-tractor trucks; pole trailers; ready-mix trucks; fuel trucks; all trucks five (5) axle and over; drivers on belly dumps; truck mechanics (when needed).

Prevailing Wage Rates - Skilled Crafts

Details

Union	Change#	Craft	Effective Date	Posted Date
Truck Driver Locals 20,40,92,100,175,284,348,377,637,697,9 08,957 - Bldg & HevHwy Class 2	LCN01-2026ib	Truck Driver	05/01/2026	04/29/2026

Wage Rates

Classification	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Truck Driver CLASS 2	\$35.91	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$56.76	\$74.72
Apprentice	Percent	BHR									
First 6 months	79.990000	\$28.72	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$49.57	\$63.93
7-12 months	85.000000	\$30.52	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$51.37	\$66.63
13-18 months	90.000000	\$32.32	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$53.17	\$69.33
19-24 months	95.000000	\$34.11	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$54.96	\$72.02
25-30 months	100.000000	\$35.91	\$10.75	\$9.60	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$56.76	\$74.72

Special Calculation Note

Ratio

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note)

Adams, Allen, Ashland, Ashtabula, Athens, Auglaize, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Darke, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Fulton, Gallia, Greene, Guernsey, Hamilton, Hancock, Hardin, Harrison, Henry, Highland, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Mercer, Miami, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Pike, Portage, Preble, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Shelby, Stark, Summit, Trumbull, Tuscarawas, Union, Van Wert, Vinton, Warren, Washington, Wayne, Williams, Wood, Wyandot

Special Jurisdictional Note

Details

CLASS 2: Drivers on articulated dump trucks; rigid-frame rock trucks; distributor trucks; low boys/drag driver on the construction site only and heavy duty equipment (irrespective of load carried) when used exclusively for transportation on the construction site only.

SECTION 9
APPENDIX

2026 NATIONWIDE PERMITS FOR THE STATE OF OHIO

U.S. ARMY CORPS OF ENGINEERS (CORPS) REGULATORY PROGRAM REISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS WITH OHIO DEPARTMENT OF NATURAL RESOURCES CONSISTENCY DETERMINATION UNDER THE COASTAL ZONE MANAGEMENT ACT AND OHIO EPA 401 WATER QUALITY CERTIFICATION

Final action published in the *Federal Register* (91 FR 768) on January 8, 2026:

<https://www.federalregister.gov/documents/2026/01/08/2026-00121/reissuance-and-modification-of-nationwide-permits>

On December 16, 2025, the Ohio Environmental Protection Agency granted a general Section 401 Water Quality Certification (WQC) for the NWP.

On August 15, 2025, the ODNR, Office of Coastal Management concurred (Appendix 7) with the Federal Consistency determination and associated use of all NWPs for activities within Ohio's designated coastal zone, **except for NWPs 3, 7, 12, 13, 14, 15, 17, 18, 27, 36, 54 and 60.**

NWP 3 Maintenance

Effective: March 15, 2026

Expires: March 15, 2031

(a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR § 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP also authorizes the removal of previously authorized structures or fills. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project. This NWP also authorizes the removal of accumulated sediment and debris within, and in the immediate vicinity of, the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.). The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization.

(c) This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After conducting the maintenance activity, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals.

Authorities: Section 10 and Section 404

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

Corps NWP 3 Specific Regional Conditions:

- PCN, in accordance with NWP General Condition 32 and Regional General Condition 6, is required for the following activities:
 - Any jurisdictional stream or ditch channel modification (reconfiguration or reconstruction of all or part of a channel, such as

by straightening, relocating, lining, or excavating the channel, or by enclosing the channel within a structure such as a pipe or culvert) that exceeds a distance of 50 feet upstream and 50 feet downstream of the structure;

- The placement of any new rip-rap below the ordinary high water mark when associated with an existing bridge or similar crossing exceeding a total of 200 feet extending in either direction from the crossing;
 - The replacement of any permanent vertical bulkhead greater than one (1) foot waterward of the original alignment. A vertical bulkhead is defined as any structure, or fill, with a vertical face. It may be constructed of timber, steel, concrete, etc.;
 - Regulated activities in Section 10 navigable waters that involve the discharge of greater than 25 cubic yards of dredged or fill material below the ordinary high water mark; and
 - All regulated activities in Section 10 navigable waters, and federal harbors in Lake Erie.
- For projects located along the shorelines of Lake Erie, Sandusky Bay, and Maumee Bay, all sand and gravel located below the proposed project, both below and above ordinary high water mark (573.4 feet International Great Lakes Datum 1985), will be excavated down to clay or bedrock, and side cast into the nearshore area either immediately waterward or downdrift of the project area. It will be at the discretion of the district engineer to determine whether the material located below the authorized structure needs to be relocated, where it should be relocated to, and the appropriate authorization, if needed, for the relocation. Verification of the placement of the excavated material within the nearshore area shall be documented through the submittal of dated photographs and an accompanying photo location map to the district engineer within 30 days of commencement of the project.

Ohio 401 Water Quality Certification (WQC) Special Limitations and Conditions:

1. Ohio state certification general limitations and conditions sections C, D, and E apply to this nationwide permit.
2. Individual 401 WQC is required for temporary or permanent impacts to category 3 wetlands that exceed 0.1 acres. Impacts to category 3 wetlands are only allowable for activities involving the repair, maintenance, replacement, or safety upgrades to existing infrastructure that meets the definition of public need. Ohio EPA will make the determination if a project meets public need during the ORAM verification process.

Ohio Department of Natural Resources Coastal Zone Management Agency Federal Consistency Determination Condition:

For all activities located within or along the shore of Ohio's portion of Lake Erie, including Maumee Bay and Sandusky Bay, all applicable authorizations under the Ohio Coastal Management Program must be obtained from the Ohio Department of Natural Resources Office of Coastal Management.

Nationwide Permits Regional General Conditions (Applies to All 2026 Nationwide Permits in Ohio)

Special Note:

Note 1: For NWPs that do not require Pre-Construction Notification (PCN) to the Corps, it is an applicant's responsibility to review the Section 401 Clean Water Act Water Quality Certification (401 WQC) general and NWP-specific terms and conditions and submit information to the Ohio Environmental Protection Agency as required by their 401 WQC. A project that meets the terms and conditions of a NWP with no PCN to the Corps is only valid when accompanied by a blanket or individual 401 WQC from the Ohio Environmental Protection Agency. No regulated work in waters of the United States may commence until the required 401 WQC (or waiver) has been obtained from the Ohio Environmental Protection Agency.

Note 2: It is strongly encouraged that non-Federal applicants use Information for Planning and Consultation (IPaC) to obtain a species list, when practicable, and submit this list with any required Pre-Construction Notification.

Note 3: Helpful information is enclosed at the end of the package to assist with compliance with the terms and conditions of the NWPs.

Note 4: The Corps continues to encourage the public to use the Regulatory Request System (RRS) for an improved permitting experience."

- 1. Bogs and/or fens, Category 3 wetlands, or other rare Ohio wetlands (such as Hemlock Swamps):** The NWPs do not authorize any regulated activity which negatively impacts the functions and services of jurisdictional bogs and/or fens, Category 3 wetlands, or other rare Ohio wetlands (such as Hemlock Swamps). Negative impacts include conversion of an area of the waters of the United States considered as a bog, fen, Category 3 wetland or other rare Ohio wetlands (A subset of Category 3 wetlands explicitly identified in OAC 3745-1-54(C)(3), such as bogs, fens, and Hemlock Swamps) as determined using the Ohio Environmental Protection Agency's Ohio Rapid Assessment Method into a use to which it was not previously subject, where the flow or circulation of waters of the United States may be impaired, or the reach of such waters reduced. Impairment of flow or circulation occurs when a regulated discharge or activity causes any measurable change to the wetland's natural hydrologic regime that undermines its ability to store, convey, or attenuate floodwaters, maintain seasonal

hydroperiods (frequency and duration of inundation), exchange water laterally or vertically between surface and groundwater or sustain the slow, diffuse sheetflow patterns typical of bogs, fens, and other high-value wetlands. Common examples of impairment include but are not limited to placing fill or constructing berms that block lateral sheetflow and create ponding or dry pockets, undersized culverts or bridges that throttle wetland inflow/outflow, causing upstream pooling or downstream scouring, excavating drainage ditches that lower groundwater and shorten the wetland's hydroperiod, and installing hard-lined channels that convert diffuse flow into a fast, concentrated conveyance, reducing residence time. Where the proposed discharge will result in significant discernible alterations to flow or circulation, the presumption is that flow or circulation may be impaired by such alteration.

2. **Lake Erie Diversion of Water:** NWP's shall not authorize any regulated activity in Lake Erie which would result in diversion of water from the Great Lakes.
3. **Lake Erie Littoral Transport:** NWP's shall not authorize any regulated activity which has an adverse impact on littoral transport within Lake Erie.
4. **In-Water Work Exclusion Dates:** To facilitate compliance with NWP General Condition 3, any work associated with a regulated activity under a NWP cannot take place during the restricted period of the following Ohio Department of Natural Resources, Division of Wildlife In-Water Work Restrictions, unless the applicant receives advanced written approval (a copy of which should be submitted with the application submittal) from the Ohio Department of Natural Resources, Division of Wildlife and receives written approval from the Corps:
 - a. Salmonid Locations Restriction Period: September 15 – June 30
 - b. Other Locations Restriction Period: March 15 – June 30

Note 1: This list of restriction locations can be found at https://dam.assets.ohio.gov/image/upload/ohiodnr.gov/documents/wildlife/general/IN-WATER_WORK_RESTRICTION_PERIODS_AND_LOCATIONS.pdf and is subject to change as determined by the Ohio Department of Natural Resources, Division of Wildlife.

Note 2: This condition does not apply to Ohio Department of Transportation projects that are covered under the "Memorandum of Agreement Between The Ohio Department of Transportation, The Ohio Department of Natural Resources, and The United States Fish and Wildlife Service For Interagency Coordination For Projects Which Require Consultation Under the Endangered Species Act, Impact State Listed Species, and/or Modify Jurisdictional Waters 2016 Agreement Number: 19394" or subsequent amendments to this Ohio Department of Transportation memorandum of agreement.

5. **Waters of Special Concern:** PCN, in accordance with NWP General Condition 32 and Regional General Condition 6, is required for regulated activities in the following jurisdictional resources:

a. **Critical Resource Waters:**

- ii. In Ohio, two (2) areas have been designated critical habitat for the piping plover (*Charadrius melodus*) and are defined as lands 0.62 mile inland from normal high water line. Unit OH-1 extends from the mouth of Sawmill Creek to the western property boundary of Sheldon Marsh State Natural Area, Erie County, encompassing approximately two (2) miles. Unit OH-2 extends from the eastern boundary line of Headland Dunes Nature Preserve to the western boundary of the Nature Preserve and Headland Dunes State Park, Lake County, encompassing approximately 0.5 mile. For maps of the designated critical habitat, visit <https://www.govinfo.gov/content/pkg/FR-2001-05-07/pdf/01-11205.pdf>.
- iii. In Ohio three (3) areas have been designated critical habitat for the rabbitsfoot mussel (*Quadrula cylindrica cylindrica*). Unit RF26 includes 17.5 river kilometers (rkm) (10.9 river miles [rimi]) of the Walhonding River from the convergence of the Kokosing and Mohican Rivers downstream to Ohio Highway 60 near Warsaw, Coshocton County, Ohio. Unit RF27 includes 33.3 rkm (20.7 rmi) of Little Darby Creek from Ohio Highway 161 near Chuckery, Union County, Ohio, downstream to U.S. Highway 40 near West Jefferson, Madison County, Ohio. Unit RF29 includes 7.7 rkm (4.8 rmi) of Fish Creek from the Indiana and Ohio State line northwest of Edgerton, Ohio, downstream to its confluence with the St. Joseph's River north of Edgerton, Williams County, Ohio. For maps of the designated critical habitat, visit <https://www.govinfo.gov/content/pkg/FR-2001-05-07/pdf/01-11205.pdf>.
- iv. Old Woman Creek National Estuarine Research Preserve. For information pertaining to this reserve, visit <https://ohiodnr.gov/go-and-do/plan-a-visit/find-a-property/old-woman-creek-nerr-state-nature-preserve>
- v. Round hickorynut (*Obovaria subrotunda*): Grand River Unit RH 2 consists of 92 river miles (148.2 km) of the Grand River in Ashtabula, Lake, and Trumbull Counties, Ohio, from the Trumbull/ Geauga County line south of Lake County, Ohio State Route 88, downstream to the mouth of the Grand River at its confluence with Lake Erie. For maps to the designated critical habitat, visit <https://www.govinfo.gov/content/pkg/FR-2001-05-07/pdf/01-11205.pdf>.

b. **Oak Openings:** Wetland activities conducted in the Oak Openings Region of Northwest Ohio located in Lucas, Henry and Fulton Counties. For a map of the Oak Openings Region, visit

<https://www.google.com/maps/d/viewer?mid=1JADupaZXJzO6AUDvnUaV18GVjG7yfBim&usp=sharing>

- c. **Category 3 Wetlands:** As determined through use of the latest approved version of the Ohio Environmental Protection Agency's Ohio Rapid Assessment Method wetland evaluation form.
- d. **Ohio Stream Designations:** Exceptional Warmwater Habitat, Cold Water Habitat, Seasonal Salmonid, or any equivalent designation; or water bodies with an antidegradation category of Superior High Quality Water, Outstanding National Resource Water, or Outstanding State Waters as determined by the Ohio Environmental Protection Agency except for NWP's 1, 2, 3, 9, 10, 11, 27, 28, 32, and 35 or maintenance activities covered under NWP's 7 and 12. The current list of these rivers and tributaries can be found on the Ohio Environmental Protection Agency web-site at: <https://epa.ohio.gov/divisions-and-offices/surface-water/regulations/effective-rules>. These designations can be found under the aquatic life use of the rivers and tributaries within its basin and under the "Anti-deg Rule #05."
- e. **Ohio and Erie Canal National Heritage Area:** The Ohio and Erie Canal National Heritage Area extends from Cleveland, Ohio to Dover, Ohio. For a map to the designated National Heritage Area, visit <https://www.ohioanderiecanalway.com/explore/americas-byway/>

Note 1: This condition does not apply to Ohio Department of Transportation projects that are covered under the "Programmatic Agreement (PA) Among The Federal Highway Administration, The Advisory Council On Historic Preservation, Ohio's State Historic Preservation Office, And The State of Ohio, Department of Transportation Regarding Implementation Of The Federal-Aid Highway Program In Ohio (Agreement No. 19319) executed on 8 November 2017 and amended on 11 July 2019" or subsequent amendments to this Ohio Department of Transportation memorandum of agreement.

- f. **Muskingum River Navigation Historic District:** The Muskingum River Navigation Historic District is a 6,004 acres (24.30 km²) historic district in Ohio's Coshocton, Morgan, Muskingum, and Washington counties, which was listed on the National Register of Historic Places in 2007. The listing includes 12 contributing buildings, 32 contributing structures, and a contributing site. The "Muskingum River lock system was designated the first Navigation Historic District in the United States by the National Park Service." The Muskingum River Navigation System was also designated as a National Historic Civil Engineering Landmark by the American Society of Civil Engineers in 2001. For a map to the designated historic district, visit <https://ohiodnr.gov/go-and-do/plan-a-visit/find-a-property/muskingum-river-state-park>

Note 1: This condition does not apply to Ohio Department of Transportation projects that are covered under the “Programmatic Agreement (PA) Among The Federal Highway Administration, The Advisory Council On Historic Preservation, Ohio’s State Historic Preservation Office, And The State of Ohio, Department of Transportation Regarding Implementation Of The Federal-Aid Highway Program In Ohio (Agreement No. 19319) executed on 8 November 2017 and amended on 11 July 2019” or subsequent amendments to this Ohio Department of Transportation memorandum of agreement.

6. **Pre-Construction Notification (PCN):** In addition to the information required under NWP General Condition 32, the following information must be provided with the PCN:
- a. **Threatened and Endangered Species:** Consistent with NWP General Condition 18, information for federally listed or proposed threatened and endangered species must be provided in the PCN to determine the proposed activity's compliance with NWP General Condition 18 and to facilitate project-specific coordination with the United States Fish and Wildlife Service (USFWS). In addition to the information described in General Condition 18(c), PCNs submitted by non-Federal applicants must include any relevant information obtained from the USFWS. When practicable, the PCN should include a copy of the official species list obtained from the USFWS’ Information for Planning and Consultation (IPaC) System at <https://ipac.ecosphere.fws.gov/>. Reference the “Helpful Information” for a list of activities that might affect federally listed species and other pertinent information.
 - b. **Cultural Resources:** Consistent with NWP General Condition 20, historic properties information must be provided in the PCN if the proposed undertaking might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties.
 - c. **National Wild and Scenic Rivers:** Consistent with NWP General Condition 16, the applicant must submit a PCN to the Corps for proposed activities in the following waterways which are components of the National Wild and Scenic River System:

Big and Little Darby Creeks

- Big Darby Creek from Champaign-Union County line downstream to the Conrail railroad trestle and from the confluence with the Little Darby Creek downstream to the Scioto River;
- Little Darby Creek from the Lafayette-Plain City Road bridge downstream to within 0.8 mile from the confluence with Big Darby Creek; and
- Total designation is approximately 82 miles.

Little Beaver Creek

- Little Beaver Creek main stem, from the confluence of West Fork with Middle Fork near Williamsport to mouth;
- North Fork from confluence of Brush Run and North Fork to confluence of North Fork with main stem at Fredericktown;
- Middle Fork from vicinity of Co. Rd. 901 (Elkton Road) bridge crossing to confluence of Middle Fork with West Fork near Williamsport;
- West Fork from vicinity of Co. Rd. 914 (Y-Camp Road) bridge crossing east to confluence of West Fork with Middle Fork near Williamsport; and
- Total designation is 33 miles.

Little Miami River

- Little Miami River - St. Rt. 72 at Clifton to the Ohio River;
- Caesar Creek - lower two (2) miles of Caesars Creek; and
- Total designation is 94 miles.

- d. **Temporary Fills or Structures:** For NWP verification requests that require PCN and include a request for authorization for temporary fills or structures, the PCN must specify how long the temporary fills or structures will remain and include a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-construction contours and elevations. Native, non-invasive vegetation must be used.
- e. **Clean Water Act Section 401 Water Quality Certification:** When a project is not covered by a general 401 WQC and requires a PCN, documentation must be provided that a request for an individual 401 WQC or a Director's Authorization was submitted to the Ohio Environmental Protection Agency and this office concurrently, including the date of request. If a request for an individual 401 WQC has not been submitted, the applicant must identify the anticipated date of the individual 401 WQC request following the submittal of a pre-filing meeting request to the Ohio Environmental Protection Agency.
- f. **Another Lead Federal Agency:** For proposed activities where the Corps is not the lead federal agency and PCN is required, the applicant must provide the Corps with the appropriate documentation to demonstrate the lead federal agency's compliance with Section 106 of National Historic Preservation Act, and Section 7 of the Endangered Species Act.
- g. **Ohio Rapid Assessment Method (ORAM):** A ORAM verification is required from the Ohio Environmental Protection Agency for each proposed wetland impact of greater than 1/10-acre resulting from a discharge of dredged and/or fill material. The following information should be provided to the Ohio Environmental Protection Agency via their EBusiness center at <https://ebiz.epa.ohio.gov/> to expedite their review:

- i. 10-page ORAM form;
- ii. A minimum of four (4) high resolution color photographs taken while facing each of the four (4) cardinal directions of each wetland proposed for impact. Photographs must accurately depict the quality of the wetland and may not include a majority of dying or dead vegetation or excessive cover due to seasonal conditions that vegetation and substrates cannot be observed, such as leaf litter, snow, or ice. Photographs deemed to be insufficient of representing the wetland will be required to be retaken once seasonal conditions are appropriate. Photographs shall be clearly labeled with the wetland name, direction, and date;
- iii. United States Geological Survey topographical map, National Wetlands Inventory map, Soil Survey map and aerial images (both historical and current) which clearly outline the entire wetland boundary;
- iv. A detailed description of how the project meets public need, as defined in Ohio Administrative Code 3745-1-50, for impacts to Category 3 wetlands;
- v. Environmental Review letter from the Ohio Department of Natural Resources, with Ohio Natural Heritage Database (ONHD) results indicating known records (or lack thereof) of state listed threatened and/or endangered species. The Ohio Department of Natural Resources Environmental Review website can be found at <https://ohiodnr.gov/discover-and-learn/safety-conservation/about-ODNR/real-estate/environmental-review/> and contains instructions on submitting for Environmental Reviews. Requests for Environmental Reviews should be submitted to environmentalreviewrequest@dnr.ohio.gov;
- vi. Copies of any correspondence submitted to and received from the Ohio Environmental Protection Agency should be included in the application package to facilitate the Corps' evaluation of the functions provided by the wetlands that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), and the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer; and
- vii. If no response within 25 days from the Ohio Environmental Protection Agency, then the proponent can move forward with the provided their PCN with the relevant ORAM information that was provided to the Ohio Environmental Protection Agency).

7. Compensatory Mitigation:

- a. Regarding culvert replacements, the Corps will evaluate the existing culvert length and any new culvert length or associated rip rap/wing wall/structure separately. Direct culvert replacement will not require compensatory mitigation. An extension or additional loss of waters will be considered for compensatory mitigation requirements.
 - b. The overlap of fill (where previous culverts existed) does not require compensatory mitigation.
 - c. The installation of new or additional culvert(s) in a previously open channel will be evaluated for compensatory mitigation requirements.
 - d. As a general matter, compensatory mitigation will not be required for bank stabilization activities if those activities are expected to result in a net gain of functions and services due to reductions in bank erosion and sedimentation.
 - e. For wetland losses and permanent wetland conversions of 1/10-acre or less or stream losses of 3/100-acre or less associated with the discharge of dredged and/or fill material within the State of Ohio, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.
 - f. Use of 'conversion' relates to the change of a scrub/shrub and forested wetlands to an herbaceous state or a forested wetland to a scrub/shrub state, but it would not result in a loss of waters of the United States since the wetland would continue to exist in the landscape.
8. **Invasive Species:** For regulated activities that include grading, no area for which grading has been completed will be unseeded or unmulched for longer than 14 days. All disturbed areas associated with the authorized activity will be seeded and/or revegetated with native species and seed mixes (where practicable) after completion of construction activities for stabilization and to help preclude the establishment of non-native invasive species.
9. **Aquatic Life Movements:** Consistent with NWP General Condition 2, culverts and other crossings of waterbodies shall be designed and sized to accommodate bankfull discharge and match the existing depth of flow to facilitate the passage of aquatic organisms. When practicable, culverts shall be installed at the existing streambed slope, to allow for the natural movement of bedload and aquatic organisms. Where applicable and based on regional best practices, as recommended by the Ohio Environmental Protection Agency, bottomless or buried culverts are required when culvert size is greater than 48-inches in diameter. This condition does not apply if the culverts have a gradient of greater than 1% grade or installed on bedrock. A buried culvert means that the bottom 10% by dimension shall be buried below the existing stream bed elevation.

Nationwide Permit General Conditions:

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees

should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP.

Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that **all of the provisions** of 33 CFR § 330.1 through § 330.6 **apply to every NWP authorization**. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation.

- a. No activity may cause more than a minimal adverse effect on navigation.
- b. Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.
- c. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements.

No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas.

Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an

important spawning area are not authorized.

4. Migratory Bird Breeding Areas.

Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds.

No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material.

No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes.

No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments.

If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows.

To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows, including tidal flows. The activity must not restrict or impede the passage of normal or high flows, including tidal flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains.

The activity must comply with applicable FEMA-approved state or local floodplain

management requirements.

11. Equipment.

Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance. If mats are used to minimize soil disturbance, the affected areas must be returned to pre-construction elevations, and revegetated as appropriate. In circumstances where the use of mats has caused significant soil compaction efforts using techniques (e.g., soil reaeration techniques) to break up the compaction should be employed to return the soil to a pre-construction state prior to returning to pre-construction elevations.

12. Soil Erosion and Sediment Controls.

Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills.

Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance.

Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project.

The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers.

- a. No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility

- for such river has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.
- b. If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.
 - c. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights.

No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species.

- a. No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of “effects of the action” for the purposes of ESA section 7 consultation.
- b. Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.
- c. Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated

critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

- d. As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWP.
- e. Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.
- f. If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal permittee should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take

were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

- g. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their web pages at <http://www.fws.gov/> or <https://ipac.ecosphere.fws.gov/> and <https://www.fisheries.noaa.gov/topic/endangered-species-conservation> respectively.

19. Migratory Birds and Bald and Golden Eagles.

The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether “incidental take” permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties.

- a. No activity is authorized under any NWP which may have the potential to cause effects on properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.
- b. Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.
- c. Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects on any historic properties listed on, determined to be eligible for listing on, or

- potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.
- d. Where the non-federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects on historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.
 - e. Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation

with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts.

Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the federal, tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters.

Critical resource waters include NOAA-managed marine sanctuaries and marine monuments and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

- a. Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.
- b. For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation.

The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

- a. The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).
- b. Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.
- c. Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.
- d. Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, because streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).
- e. Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or

maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

- f. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.
 - (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWP, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.
 - (2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)
 - (3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.
 - (4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

- (5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).
- (6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).
- g. Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.
- h. Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.
- i. Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures.

To ensure that all impoundment structures are safely designed, the district engineer may require non-federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality.

- a. Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed activity which may result in any discharge from a point source into waters of the United States must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by the certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed activity which may result in any discharge from a point source into waters of the United States in order for the activity to be authorized by an NWP.
- b. If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed activity which may result in any discharge from a point source into waters of the United States is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge into waters of the United States, the permittee must submit a copy of the certification to the district engineer. The discharge into waters of the United States is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied (i.e., by the issuance of a water quality certification or a waiver and completion of the Section 401(a)(2) process).
- c. The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management.

In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions.

The activity must comply with any regional conditions that may have been added by the division engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits.

The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

- a. The total acreage loss of waters of the United States for a single and complete project cannot exceed the acreage limit of the NWP with the highest specified acreage limit when multiple NWPs are used to authorize an activity.
- b. If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States for that single and complete project cannot exceed that specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14 (which has an acreage limit of 1/3-acre in tidal waters), with associated bank stabilization authorized by NWP 13 (which does not have a specified acreage limit), the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.
- c. If two or more of the NWPs used to authorize the single and complete project have specified acreage limits, the acreage loss of waters of the United States authorized by each of those NWPs cannot exceed the specified acreage limits of each of those NWPs. For example, if a commercial development is constructed under NWP 39 (which has a 1/2-acre limit), and the single and complete project includes the filling of a ditch authorized by NWP 46 (which has a 1-acre limit), the maximum acreage loss of waters of the United States for the construction of the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States caused by the combination of the NWP 39 and NWP 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications.

If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification.

Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The successful completion of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

- a. A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
- b. A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
- c. The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States.

If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification.

- a. **Timing.** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN

complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
- (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

- b. **Contents of Pre-Construction Notification:** The PCN must be in writing and include the following information:
- (1) Name, address and telephone numbers of the prospective permittee;
 - (2) Location of the proposed activity;
 - (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
 - (4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or

individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

- i. For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.
 - ii. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);
- (5) The PCN must include a delineation of waters, wetlands, and other special aquatic sites on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate. For NWP 27 activities that require PCNs because of other general conditions or regional conditions imposed by division engineers, see Note 2 of that NWP;
- (6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the compensatory mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.
- (7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for

such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

- (8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;
- (9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and
- (10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

c. **Form of Pre-Construction Notification:** The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

d. **Agency Coordination:**

- (1) The district engineer will consider any comments from federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.
- (2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet

from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

- (3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.
- (4) In cases where the prospective permittee is not a federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.
- (5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other

aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add activity-specific conditions to the NWP authorization to address site-specific environmental concerns.
3. If the proposed NWP activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. However, compensatory mitigation shall not be required for activities authorized by NWP 27 because those activities must result in net increases in aquatic resource functions and services (see the text of NWP 27). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal when determining whether the net adverse environmental effects of the proposed NWP activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the proposed activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific

conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed NWP activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN review period (unless additional time is required to comply with general conditions 16, 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic ecosystem restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on: (1) the structure, functions, and dynamics of an aquatic ecosystem type or a riparian area type that currently exists in the region; (2) the structure, functions, and dynamics of an aquatic ecosystem type or riparian area type that existed in the region in the past; and/or (3) indigenous and local ecological knowledge that apply to the aquatic ecosystem type or riparian area type (i.e., a cultural ecosystem). Cultural ecosystems are ecosystems that have developed under the joint influence of natural processes and human management activities e.g., fire stewardship). An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic

resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net

threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Nature-based solutions: Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWP, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily

submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the

purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock, inorganic particles that range in size from clay to boulders. The substrate may also be comprised, in part, of organic matter, such as large or small wood fragments, leaves, algae, and other organic materials. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently

moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: (1) held in trust by the United States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a “water of the United States.” If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

General Limitations and Conditions for all Ohio Environmental Protection Agency 401 Water Quality Certified Nationwide Permits

A. CULVERTS

Conditions 1-4 are required unless culverts have a gradient of greater than 1 % or are installed on bedrock or if a demonstration can be made that the aquatic organism passage design would cause downstream property damage from flooding:

1. For new and replacement culverts, bottomless or buried culverts are required when culvert size is greater than 48" in diameter. A buried culvert means that the bottom 10% by rise shall be buried below the existing stream bed elevation.
2. New culverts shall be designed and sized to accommodate bankfull width and match the existing depth of flow to facilitate the passage of aquatic organisms and movement of bed load.
3. Culvert replacement or maintenance projects shall, at a minimum, accommodate bankfull discharge. Culvert replacement shall be installed to match the existing depth of flow to facilitate the passage of aquatic organisms and movement of bedload. Culvert maintenance projects shall implement techniques to eliminate perched conditions caused by scour at the culvert outlet to accommodate aquatic organism passage and bed load transport if either are restricted.
4. When practicable, culverts shall be installed at the existing stream bed slope, to allow for the natural movement of bed load and aquatic organisms.
5. All other culverts shall be designed to accommodate bankfull discharge at a minimum and, when practicable, installed at the existing stream bed slope and buried.
6. Where culverts are installed for temporary crossings, the bottom elevations of the stream shall be restored as nearly as possible to pre-project conditions.

B. BEST MANAGEMENT PRACTICES

1. Unless subject to a more specific stormwater National Pollutant Discharge Elimination System (NPDES) permit, all best management practices for stormwater management shall be designed and implemented in accordance with the most current edition of the NPDES construction general permit available at: <https://epa.ohio.gov/divisions-and2026> Nationwide Permit Reauthorization Ohio State Water Quality Certification, or any watershed specific construction general permit.
2. Sediment and erosion control measures and best management practices must be designed, installed, and maintained in effective operating condition at all times during construction activities as required by applicable NPDES permits. Proper maintenance ensures corrective measures will be implemented for failed controls within 3 days of discovery.

3. For perennial and intermittent streams, in-stream sediment control measures shall not be utilized, with the exception of turbidity curtains parallel to the stream bank, for the purpose of sediment collection. All sediment and erosion control measures shall be entirely removed and the natural grade of the site restored once construction is completed.
4. All avoided water resources and associated buffers/riparian areas shall be demarcated in the field and protected with suitable materials (e.g., silt fencing, snow fencing, signage, etc.) prior to site disturbance. These materials shall remain in place and be maintained throughout the construction process and shall be entirely removed once construction is completed.
5. Disturbance and removal of vegetation from the project construction area is to be avoided where possible and minimized to the maximum extent practicable. Entry to surface waters shall be through a single point of access to the maximum extent practicable to minimize disturbance to riparian habitat. Unavoidable temporary impacts to forested riparian habitat shall be restored as soon as practicable after in water work is complete using tree and shrub species native to the specific ecoregion where the project is located.
6. All dredged material placed at an upland site shall be controlled so that sediment runoff to adjacent surface waters is minimized to the maximum extent practicable.
7. Straw bales shall not be used as a form of erosion/sediment control.
8. Heavy equipment shall not be placed below the ordinary high water mark of any surface water, except when no other alternative is practicable.
9. Temporary fill for purposes of access or staging shall consist of suitable non-erodible material and shall be maintained to minimize erosion.
10. Chromated copper arsenate (CCA) and creosote treated lumber shall not be used in structures that come into contact with waters of the state.
11. All dewatering activities must be conducted in such a manner that does NOT result in a violation of water quality standards.
12. All areas of final grade must be protected from erosion within seven days or within two days if within 50 feet of a surface water of the state.
13. All disturbed areas which remain dormant in excess of fourteen days must be protected from erosion within seven days from the last earth disturbing activity or within two days if within 50 feet of a surface water of the state.
14. In the event of authorized in-stream activities, provisions must be established to redirect the stream flow around or through active areas of construction in a stabilized,

non-erosive manner to the maximum extent possible.

C. MITIGATION

1. Compensatory mitigation is required for the discharge of dredged or fill material into wetlands for permanent impacts exceeding 0.10 acres.
2. Compensatory mitigation is required for the discharge of dredged or fill material into streams for permanent impacts exceeding 0.03 acres.
3. When required, compensatory mitigation for wetlands and streams shall be provided in accordance with chapters 3745-1-54 and 3745-32-04 of the Ohio Administrative Code.
4. When compensatory mitigation will be provided wholly or in part at a mitigation bank or through an in-lieu fee program, credit purchase shall only be authorized at those banks or in-lieu fee programs approved by the Interagency Review Team (IRT).

D. DIRECTOR'S AUTHORIZATION

1. In accordance with the procedures outlined in **Appendix A**, Ohio EPA may grant coverage under this certification for any project that does not meet one or more of the terms and conditions for eligibility of this certification or where the district engineer has been granted authority to waive certain requirements. Coverage may be granted when Ohio EPA determines, consistent with the special limitations and conditions for each certification, and after considering comments received on the requested director's authorization, that a project will have such a minimal impact on water quality that an individual 401 WQC is not necessary provided all other terms and conditions of this certification have been met. If a director's authorization is not granted, an individual 401 WQC must be obtained. In no case may a director's authorization issued under this certification exceed an impact threshold authorized by the Corps' Nationwide Permit.

E. NOTIFICATION TO OHIO EPA

1. For any activity proposed to be authorized under NWP 3, 4, 5, 6, 7, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 25, 27, 29, 30, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 49, 50, 51, 52, 53, 54, 57, 58, 59, and A, **when a PCN is not required by the Corps**, notification to Ohio EPA is required for impacts to the following resources:
 - a. category 3 wetlands;
 - b. ~0.10 acres of wetland.
2. Notifications required by E.1 should be submitted using the Ohio EPA 401 eBusiness Center and contain all information required by **Appendix B**, as well as a description of the proposed impacts including project design details.

3. For any activity proposed to be authorized under NWP's 4, 5, 6, 7, 13, 14, 15, 18, 23, 25, 27, 29, 30, 32, 33, 36, 39, 40, 41, 42, 43, and A, **when a PCN is not required by the Corps**, notification to Ohio EPA is required for impacts to the following resources:

- a. permanent impacts to >0.03 acres of stream;

4. Notifications required by E.3 should be submitted using the Ohio EPA 401 Preapplication Request Form through the eBusiness center and contain all information required by **Appendix B**, as well as a description of the proposed impacts including project design details.

5. When notification to Ohio EPA is required by conditions E.1 and E.3 above, the applicant shall not begin the activity until either:

- a. They are notified in writing by Ohio EPA that the activity may proceed under the 401 WQC for the NWP; or
- b. 45 calendar days have passed from Ohio EPA's receipt of the notification and the applicant has not received written notice from Ohio EPA that additional information is necessary or that an individual 401 WQC is required.

F. MISCELLANEOUS

1. Authorization under this certification does not relieve the certification holder from the responsibility of obtaining any other federal, state or local permits, approvals or authorizations.

2. For purposes of this certification the Corps' definition of single and complete project shall be applied to all conditions regarding impacts, mitigation, and director's authorizations. If a project includes impacts that are ineligible under this certification, an applicant must apply for an individual 401 WQC or a director's authorization for the entire project.

3. For purposes of this certification temporary impact means temporary activities, lasting no longer than 2 years, which facilitate the nature of the activity or aid in the access, staging, or development of construction that are short term in nature and which are expected, upon removal of the temporary impact, to result in the surface water returning to conditions which support pre-impact biological function with minimal or no human intervention within 12 months following the completion of the temporary impact. Examples of temporary impacts include, but are not limited to access roads, work pads, staging areas, and stream crossings, including utility corridors. Activities that result in a wetland conversion (e.g. forested to non-forested) are not considered temporary impacts.

4. In the event that the issuance of a nationwide permit by the Corps requires individual 401 WQC for an activity that constitutes an emergency as defined in 33 CFR 325.2(e)(4), the limitation and/or condition requiring the individual 401 WQC is not

applicable and the project may proceed upon approval by the Corps provided all other terms of this certification, including mitigation, are met.

5. Representatives from Ohio EPA, Division of Surface Water will be allowed to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of this certification. This includes, but is not limited to, access to and copies of any records that must be kept under the conditions of this certification; and authorization to sample and/or monitor any discharge activity or mitigation site. Ohio EPA will make a reasonable attempt to notify the applicant of its intention to inspect the site in advance of that inspection.

6. Impacts as referenced in this certification consist of waters of the United States, that are also waters of the state, directly impacted by the placement of fill or dredged material.

7. In accordance with the procedures outlined in **Appendix B**, and where specifically required in the special limitations and conditions of this certification, an applicant proposing to impact a wetland shall perform a wetland characterization analysis consistent with the Ohio Rapid Assessment Method (ORAM) to demonstrate wetland category for all projects requiring a PCN to the Corps or notification to Ohio EPA.

8. If recommended in comments received from the United States Fish and Wildlife Service (USFWS) or the Ohio Department of Natural Resources (ODNR), a mussel survey and relocation shall be performed by a professional malacologist with appropriate minimum qualifications in coordination with the USFWS and/or ODNR Division of Wildlife, as described in the Ohio Mussel Survey Protocol prior to the discharge of fill material into streams.

Appendix A Director's Authorization Process

1. To apply for a director's authorization for coverage under this certification, the applicant must provide to Ohio EPA the following:
 - a. A completed Director's Authorization Request Form submitted through the Ohio EPA eBusiness center;
 - b. A copy of the pre-construction notification submitted to the Corps or a copy of the notification to Ohio EPA, if no PCN is required, including all attachments;
 - b. A copy of the provisional nationwide permit notification issued by the Corps including all attachments and special conditions, if any;
 - c. A copy of the mitigation plan as approved by the Corps, if applicable;
 - d. A detailed description of the conditions within this certification that are not being met; A detailed description of any NWP terms and conditions, including impact limits that the Corps district engineer has waived for the project, if applicable;
 - e. A rationale of how the applicant believes the project will minimally impact water quality for those impacts to resources that do not meet one or more of the terms and conditions within this certification, including reason(s) why the resources are unable to be avoided;
 - f. Comments received from the Ohio Department of Natural Resources and United States Fish and Wildlife Service regarding threatened and endangered species or comments from an applicant that has been authorized by these entities to make threatened and endangered species determinations;
 - g. A one-time review fee of \$2000 for the project;
 - h. A detailed description of how the project meets public need, as defined in [OAC 3745-1-50](#), for impacts to category 3 wetlands;
 - i. Documentation as required under Appendix B; and
 - j. Any other documentation as may be required under this certification.

2. Upon receipt of the director's authorization request containing items a. through i. outlined above, excluding item c., the director will post the materials on the Ohio EPA, DSW webpage and invite public comment on the request for 15 days. The director will review and consider the comments received during the public comment period before making a decision on the director's authorization.

Appendix B Wetland and Stream Notification

1. ORAM Verification Process for Wetlands. The ORAM results shall be included with the preconstruction notification (PCN) or notification to Ohio EPA if a PCN is not required by the Corps. For each wetland proposed for impact the applicant must provide the following information for review in accordance with the ORAM verification procedure:

- a. A completed request form submitted through the Ohio EPA eBusiness center;
- b. Complete ORAM forms prepared in accordance with the current ORAM manual;
- c. Wetland delineation prepared in accordance with the current method required by the Corps;
- d. A minimum of four high resolution color photographs taken while facing each of the four cardinal directions of each wetland proposed for impact. Photographs must accurately depict the quality of the wetland and may not include a majority of dying or dead vegetation or excessive cover due to seasonal conditions that vegetation and substrates cannot be observed, such as leaf litter, snow, or ice. Photographs deemed to be insufficient of representing the wetland will be required to be retaken once seasonal conditions are appropriate. Photographs shall be clearly labeled with the wetland name, direction, and date;
- e. USGS topographical map, National Wetlands Inventory map, Soil Survey map and aerial images (both historical and current) which clearly outline the entire wetland boundary;
- f. Coordination letter from the Ohio Department of Natural Resources (ODNR), Environmental Review indicating the presence or absence of state listed threatened or endangered species or comments from an applicant that has been authorized by ODNR to make threatened and endangered species determinations; and
- g. A detailed description of how the project meets public need, as defined in OAC 3745-1-50, for impacts to category 3 wetlands.

2. Notification Process for Streams. When a PCN is not required for impacts to streams >0.03 acres, the following information must be provided to Ohio EPA in accordance with the General Condition E, Notifications to Ohio EPA:

- a. A completed Pre-application Request form submitted through the Ohio EPA eBusiness center;
- b. Complete Ohio Stream Assessment Method (OSAM) assessment, or other material to determine appropriate mitigation, such as Qualitative Assessment Habitat Evaluation Index (QHEI), Headwater Habitat Evaluation Index (HHEI), or existing use demonstration as outlined in OAC 3745-1-07;
- c. A specific and detailed mitigation plan, if applicable; and
- d. A minimum of four high resolution color photographs taken while facing each of the four cardinal directions of each stream proposed for impact. Photographs must accurately depict the quality of the stream and may not include a majority of

dying or dead vegetation or excessive cover due to seasonal conditions that vegetation and substrates cannot be observed, such as leaf litter, snow, or ice. Photographs deemed to be insufficient of representing the stream will be required to be retaken once seasonal conditions are appropriate. Photographs shall be clearly labeled with the stream name, direction, and date.

HELPFUL INFORMATION FOR COMPLIANCE WITH THE REGIONAL AND GENERAL CONDITIONS

DISCLAIMER: The information below is intended to provide helpful contact information and other submittal recommendations. Contact the appropriate local, state, or federal agency for the most updated links to ensure compliance with the conditions with the special and general conditions. The Corps continues to encourage the public to use the Regulatory Request System (RRS) for an improved permitting experience.

General Condition 1 (Navigation)

Navigation Charts: The navigation charts for the Buffalo, Huntington, Louisville and Pittsburgh Districts can be found in the Inland Electronic Navigational Charts at the following link: <https://iencloud.us/>

Locks and Dams: Information for all Locks and Dams located within the Buffalo, Huntington, Louisville, and Pittsburgh Districts can be found at the following link: <https://www.lrd.usace.army.mil/Water-Information/Navigation/>

Notice to Navigation Interests Request Sheets: The Notice to Navigation Interests Request Sheets for the Buffalo, Huntington, Louisville, and Pittsburgh Districts can be found at the following link: <https://ndc.ops.usace.army.mil/ords/f?p=107:1>.

General Condition 3 (Spawning Areas) and Regional General Condition 4 (In-Water Work Exclusion Dates)

For information about specific stream designations contact Ohio Environmental Protection Agency at 614-644-2001 or use the following link for their effective Division of Surface Water Rules: <https://epa.ohio.gov/divisions-and-offices/surface-water/regulations/effective-rules>. For information or questions regarding in-water work exclusion dates, including any waiver request questions for in-water work exclusion dates, please contact the Ohio Department of Natural Resources, Division of Wildlife at 614-265-7017 or by email at matthew.stooksbury@dnr.ohio.gov.

General Condition 4 (Migratory Bird Breeding Areas) and General Condition 19 (Migratory Birds and Bald and Golden Eagles)

Prior to the submittal of a PCN, information to assist in complying with General Conditions 4 and 19 may be obtained from the United States Fish and Wildlife Service, Ohio Ecological Services Field Office at:

Address: 4625 Morse Road, Suite 104
Columbus, Ohio 43230
Email: ohio@fws.gov
Phone: (614) 416-8993

The Ohio Division of Natural Resources Division of Wildlife may be contacted at (800) 945-3543.

General Condition 5 (Shellfish Beds)

Shellfish beds in Ohio include concentrations of freshwater mussels, as determined by the Ohio Department of Natural Resources or the United States Fish and Wildlife Service. All native mussels are protected in the State of Ohio (Section 1533.324 of the Ohio Revised Code). In addition, federally listed or proposed species occur in the state and are protected by the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. § 1531 et seq.). All rivers and tributaries that contain mussels or potential mussel habitat must be surveyed prior to any proposed streambed disturbance. Any juvenile and adult specimens must be located to an acceptable location, as approved by the Ohio Department of Natural Resources and the United States Fish and Wildlife Service. Individual adult mussel specimens must be marked when relocated. Juveniles are not to be marked. Currently accepted protocol and supporting materials can be found on the Ohio Department of Natural Resources' website:

<https://ohiodnr.gov/wps/portal/gov/odnr/buy-and-apply/special-use-permits/collecting-research/ohio-mussel-surveyor>

In addition, federally endangered and federally threatened freshwater mussel species, with federally designated or proposed designated critical habitat, are known to occur in the state. These species are protected by the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). Should federally listed or proposed species be unexpectedly encountered, the work must cease, and the United States Fish and Wildlife Service must be contacted for consultation. See helpful information below for General Condition 18.

General Condition 7 (Water Supply Intakes)

Locations of drinking water source protection areas associated with public water supply intakes, including the name of the public water supply, can be found at the following link:

<https://geo.epa.ohio.gov/portal/apps/experiencebuilder/experience/?id=0e4135cb7e1a40509ed321cddaae1407>

Contact information for public water suppliers can be obtained from Ohio Environmental Protection Agency by contacting the Division of Drinking and Ground Waters at whp@epa.ohio.gov or 614-644-2752.

General Condition 10 (Fills Within 100-year Floodplains)

The following website provides a statewide listing of Floodplain Managers in Ohio:

[https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/water-resources/floodplains/.](https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/water-resources/floodplains/)

General Condition 16 (Wild and Scenic Rivers) and Regional General Condition 6c (National Wild and Scenic Rivers)

Prior to submitting a PCN for work in a National Wild and Scenic River System, it is recommended that the applicant contact the National Park Service Regional Wild and Scenic Rivers Specialist, at the Midwest Regional Office, 601 Riverfront Drive, Omaha, Nebraska 68102, for assistance in complying with General Condition 16 and Regional General Condition 6c. Any determination provided by the National Park Service should be submitted with the PCN. The following website provides information on National Wild and Scenic Rivers within Ohio: <https://www.rivers.gov/ohio>.

General Condition 18 (Endangered Species) and Regional General Condition 6a (Threatened and Endangered Species)

Section 7(a)(2) of the Endangered Species Act (ESA) states that each federal agency shall, in consultation with the Secretary, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Section 7 of the ESA, called "Interagency Cooperation," is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the continued existence of any federally or proposed federally listed species.

To obtain the most up to date information on federally threatened and endangered species, and to download an official species list, applicants are encouraged to utilize the United States Fish and Wildlife Service IPaC System found at <https://ipac.ecosphere.fws.gov/>. To expedite processing, available and applicable determination keys in IPaC should be completed with the submission of any PCN or biological resources report. The report must include a description of the action to be considered; the specific area that may be affected by the action; any listed or proposed species or critical habitat or proposed critical habitat that may be affected by the action; the manner in which the action may affect any listed or proposed species or critical habitat or proposed critical habitat; and an analysis of any cumulative effects on listed or proposed species and/or their critical habitat or proposed critical habitat. The report must include copies of all references, any proposed mitigation plan, and any other relevant available information. Information on the location of federally listed or proposed threatened and endangered species and their critical habitat or proposed critical habitat can be obtained directly from the offices of the United States Fish and Wildlife Service (USFWS) at <http://www.fws.gov/> or <https://ipac.ecosphere.fws.gov/>. In general, PCN is required under General Condition 18 of the NWP for any project where any federally listed or proposed threatened and endangered species, or their proposed or designated critical habitat, "might be affected" or "would be in the vicinity of the activity." If IPaC indicates no listed species are present or if the determination key(s) determine no effect to listed species, then General Condition 18 does not apply.

As mentioned in General Condition 18, federal applicants should follow their own procedures for complying with the requirements of the ESA. Federal applicants,

including applicants that have received federal funding, must provide the district engineer with the appropriate documentation to demonstrate compliance with ESA requirements. Non-federal applicants that have completed a Habitat Conservation Plan and obtained an Incidental Take Permit to cover take for a project should also provide the district engineer with the appropriate documentation to demonstrate compliance with ESA requirements.

Prior to the submittal of a PCN, applicants may also contact the USFWS, Ohio Ecological Services Field Office at:

Address: 4625 Morse Road, Suite 104
Columbus, Ohio 43230
Email: ohio@fws.gov
Phone: (614) 416-8993

Activities that “might” affect endangered or threatened species may include, but are not limited to:

- Removal of trees \geq three (3) inches diameter at breast height; and/or
- Removal or replacement of culverts where evidence of use by bats has been documented; and/or
 - Culverts must be both \geq three (3) feet in diameter and \geq 23 feet in length to be suitable habitat for federally listed bats
 - Bridges and suitable culverts should be examined for evidence of bat use following procedures in Appendix K of the most recent “Range-wide Indiana bat and northern long-eared bat survey guidelines.” <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>
- Impacts to a sand, gravel, and/or cobble beach and/or mud flat on the Lake Erie shoreline; and/or
- Impact a jurisdictional waterway listed in Table 1 below; and/or
- Impact a jurisdictional wetland in a township listed in Table 1 below.

Table 1 – Counties, Waterways and Wetlands within Townships		
County	Waterway	Township
Adams	Little East Fork (Ohio Brush Creek), Ohio River, Scioto Brush Creek, South Fork Scioto Brush Creek	

Table 1 – Counties, Waterways and Wetlands within Townships		
County	Waterway	Township
Ashtabula	Conneaut Creek, Mill Creek, Grand River, Pymatuning Creek	Andover, Austinburg, Cherry Valley, Colebrook, Dorset, Hartsgrove, Harpersfield, Morgan, New Lyme, Orwell, Richmond, Rome, Trumbull, Wayne, Williamsfield, Windsor
Athens	Federal Creek, Hocking River, Ohio River	
Auglaize	Auglaize River	
Brown	Eagle Creek, Ohio River	
Butler	Great Miami River	Lemon, Liberty
Champaign		Mad River, Union, Urbana
Clark	Little Miami River	Bethel, Moorfield, Pleasant, Springfield
Clermont	Ohio River	
Clinton		Chester, Richland, Wayne
Columbiana		Butler, Fairfield, Hanover, Knox, Unity
Coshocton	Killbuck Creek, Mill Creek, Mohican River, Muskingum River, Tuscarawas River, Wakatomika Creek, Walhonding River	
Crawford		Auburn, Bucyrus, Cranberry, Dallas, Holmes, Whetstone
Defiance	St. Joseph River	Milford
Delaware	Alum Creek, Mill Creek, Olentangy River	
Erie		Margaretta
Fairfield	Walnut Creek	Walnut
Fayette	Deer Creek	Concord, Green, Jasper, Union
Franklin	Alum Creek, Big Darby Creek, Big Walnut Creek, Little Darby Creek, Scioto River, Walnut Creek	
Fulton	Swan Creek	
Gallia	Ohio River	
Greene	Little Miami River	Bath, Beaver Creek, Spring Valley, Sugar Creek

Table 1 – Counties, Waterways and Wetlands within Townships		
County	Waterway	Township
Hamilton	Great Miami River, Little Miami River, Ohio River	
Hancock	Blanchard River	
Hardin	Blanchard River	Blanchard, Dudley, Hale, Jackson, McDonald, Roundhead
Hocking		Benton, Laurel
Holmes		Prairie
Huron		New Haven, Richmond
Knox	Wakatomika	
Lake	Grand River	Madison
Lawrence	Ohio River, Symmes Creek	
Licking	Wakatomika	Licking, Union
Logan	Great Miami River	Perry, Richland, Stokes, Washington, Zane
Lucas	Swan Creek	Harding, Jerusalem, Monclova, Spencer, Springfield, Swanton
Madison	Big Darby Creek, Deer Creek, Little Darby Creek	
Mahoning		Beaver, Boardman, Canfield, Green, Poland, Springfield
Marion	Olentangy River, Tymochtee Creek	Big Island, Bowling Green, Grand, Green Camp, Montgomery, Salt Rock
Meigs	East Branch Shade River, Middle Branch Shade River, Ohio River	
Miami	Great Miami River, Stillwater River	
Montgomery	Stillwater River	Mad River, Wayne
Morgan	Muskingum River	
Muskingum	Muskingum River, Wakatomika Creek	
Ottawa		Bay, Benton, Carrol, Erie
Perry		Thorn
Pickaway	Big Darby Creek, Big Walnut Creek, Deer Creek, Walnut Creek, Scioto River	
Pike	Scioto River	
Portage		Aurora, Atwater, Charlestown, Deerfield, Edinburg, Franklin, Freedom, Mantua, Nelson, Palmyra, Paris, Randolph, Ravenna, Rootstown, Streetsboro

Table 1 – Counties, Waterways and Wetlands within Townships		
County	Waterway	Township
Preble		Dixon, Gasper, Israel, Jackson, Lanier, Monroe, Somers, Twin, Washington
Putnam	Auglaize River, Blanchard River	
Richland		Plymouth
Ross	Deer Creek, Middle Fork Salt Creek, Salt Creek, Scioto River	
Sandusky		Rice, Riley, Townsend
Scioto	Little Scioto River, Ohio River, Rocky Fork Little Scioto River, Scioto Brush Creek, Scioto River, South Fork Scioto Brush Creek	Nile, Rush, Union
Shelby	Great Miami River	
Stark		Lexington, Marlboro
Summit		Hudson, Tallmadge, Twinsburg
Trumbull	Grand River, Pymatuning Creek	All townships
Tuscarawas	Tuscarawas River	
Union	Big Darby Creek, Little Darby Creek, Mill Creek, Treacle Creek	Allen, Darby, Washington
Vinton	Middle Fork Salt Creek	
Warren	Great Miami River, Little Miami River	Clear Creek, Deerfield, Massie, Turtle Creek, Union, Washington, Wayne
Washington	Little Muskingum River, Muskingum River, Ohio River	
Wayne		Clinton, Franklin, Wooster
Williams	Fish Creek, St. Joseph River, West Branch St. Joseph River	Bridgewater, Center, Florence, Jefferson, Madison, Northwest, St. Joseph, Superior
Wyandot	Tymochtee Creek	Antrim, Marseilles, Mifflin, Pitt
Stark		Lexington, Marlboro
Summit		Hudson, Tallmadge, Twinsburg
Trumbull	Grand River, Pymatuning Creek	All townships
Tuscarawas	Tuscarawas River	

Table 1 – Counties, Waterways and Wetlands within Townships		
County	Waterway	Township
Union	Big Darby Creek, Little Darby Creek, Mill Creek, Treacle Creek	Allen, Darby, Washington
Vinton	Middle Fork Salt Creek	
Warren	Great Miami River, Little Miami River	Clear Creek, Deerfield, Massie, Turtle Creek, Union, Washington, Wayne
Washington	Little Muskingum River, Muskingum River, Ohio River	
Wayne		Clinton, Franklin, Wooster
Williams	Fish Creek, St. Joseph River, West Branch St. Joseph River	Bridgewater, Center, Florence, Jefferson, Madison, Northwest, St. Joseph, Superior
Wyandot	Tymochtee Creek	Antrim, Marseilles, Mifflin, Pitt

Projects may ultimately result in a “No Effect”, a “May Affect, Not Likely to Adversely Affect”, or a “May Affect, Likely to Adversely Affect” determination depending on the details of the project, project location, proposed conservation measures, and implementation of avoidance and minimization measures. These factors are considered during formal and informal consultation under Section 7 of the ESA between the lead federal action agency and the USFWS.

A “No Effect” determination is only an appropriate conclusion when the action agency determines its proposed action will not affect a listed species or designated critical habitat. In this circumstance, no effect means that no listed species or critical habitat are present at any time in the project area.

A “May Affect” determination is the appropriate conclusion when a proposed action may pose any effects on listed species or critical habitat. Additional consultation with the Service may be needed to assist the lead federal action agency in making a final effects determination. There are two (2) outcomes during this consultation with the Service for an action, that it:

- “Is not likely to adversely affect” – the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. A “is not likely to adversely affect” may

be the appropriate conclusion when avoidance and minimization measures are implemented as part of the proposed action, even if a species is present in the project area.

- Is likely to adversely affect – the appropriate conclusion if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial (see definition of “is not likely to adversely affect”). In the event the overall effect of the proposed action is beneficial to the listed species, but is likely to cause some adverse effects, the proposed action “is likely to adversely affect” the listed species. A “likely to adversely affect” determination, would then trigger formal Section 7 consultation with the Service.

Section 7 consultation can be completed through informal consultation (may affect, is not likely to adversely affect; 50 CFR § 402.02; 50 CFR § 402.13) or through formal consultation (may affect, is likely to adversely affect; 50 CFR § 402.02; 50 CFR § 402.14) between the Service and the lead federal action agency. Reference Chapter 3 and Chapter 4, respectively, of the Final ESA Section 7 Consultation Handbook (Handbook; March 1998). This may also be true for informal and formal conference opinions for federally proposed species and/or federally proposed designated critical habitat, per Chapter 6 of the Handbook (50 CFR § 402.02; 50 CFR § 402.10).

As indicated above, in the case of any NWP, the District Engineer, as lead federal agency authorizing the action, is responsible for making an effects determination for federally listed or proposed threatened and endangered species as well as any proposed designated or designated critical habitat. This includes projects where the action “May Affect” such species, or their critical habitat.

Technical assistance to a non-federal agency does not substitute or constitute completed Section 7 consultation. Section 7 consultation is not complete until the federal action agency, or their designated non-federal representative, submits a determination of effects, and the USFWS concurs with the federal action agency's determination.

Common language included in USFWS technical assistance letters include the following language and is indicative of a “may affect, is not likely to adversely affect” determination and requires consultation between the USFWS and the Corps:

- If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), then no tree clearing should occur on any portion of the project area until consultation under section 7 of the ESA, between the Service and the federal action agency, is completed. We recommend the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

- Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, or proposed species, or proposed or designated critical habitat. Should the project design change, or additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, coordination with the Service should be initiated to assess any potential impacts.

General Condition 20 (Historic Properties), Regional General Conditions 5f (Ohio and Erie Canal National Heritage Area), 5g (Muskingum River Navigation Historic District), and 6b (Cultural Resources)

Under the National Historic Preservation Act (NHPA), the Corps must ensure no federal undertaking, including a Corps permit action, which may affect historic resources, is commenced before the impacts of such action are considered and the Advisory Council on Historic Preservation and the State Historic Preservation Office (SHPO) are provided an opportunity to comment as required by the NHPA, 36 CFR 800, and 33 CFR Part 325, Appendix C.

The Ohio National Register of Historic Places (NRHP) can be found at the following link: <https://www.ohiohistory.org/preserve/state-historic-preservation-office/nationalregister>

When reviewing a PCN, the Corps will scope appropriate historic property identification efforts and, if applicable, work with the applicant to take into account the effect of the proposed activity on historic properties. In these instances, information and coordination may include:

- The applicant may choose to conduct pre-coordination with the State Historic Preservation Office prior to submitting a PCN via Section106@ohiohistory.org. Any correspondence related to this pre-coordination should be provided with the PCN;
- The Ohio History Connection, State Historic Preservation Office may be contacted at:

Address: Ohio History Connection
800 E. 17th Ave., Columbus, Ohio 43211
Phone: (614) 297-2300
Email: Section106@ohiohistory.org

To identify potential historic properties that may be affected by a proposed project, the following information may be reviewed and/or provided with the PCN when applicable:

- a. A detailed description of the project site in its current condition (i.e. prior to construction activities) including information on the terrain and topography of the site, the acreage of the site, the proximity of the site to major waterways, and any known disturbances within the site.

- b. A detailed description of past land uses in the project site.
 - c. Photographs and mapping showing the site conditions and all buildings or structures within the project site and on adjacent parcels are useful. Photographs and maps supporting past land uses should be provided as available.
 - d. Information regarding any past cultural resource studies or coordination pertinent to the project area, if available.
 - e. United States Geological Survey (USGS) 7.5' series topographic maps;
 - f. Ohio History Connection State Historic Preservation Office files including:
 - i. Ohio Archaeological Inventory files;
 - ii. Ohio Historic Inventory files;
 - iii. Ohio State Historic Preservation Office Cultural Resources Management /contract archaeology files;
 - iv. NRHP files including Historic Districts; and
 - v. County atlases, histories and historic USGS 15' series topographic map(s).
- When needed to evaluate effects to historic properties, the applicant is encouraged to consult with professionals meeting the Professional Qualification Standards as set forth in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716) during this data gathering process. These professionals can assist with compiling the project information discussed above and should provide recommendations as to whether the proposal has the potential to affect historic properties and if further effort is needed to identify or assess potential effects to historic properties. These professionals can also compile preliminary review information to submit to the district engineer as part of the application submittal. The Corps may request additional information and/or surveys be conducted such as a Phase 1 Archaeological Survey or an Architectural Survey.

General Condition 23 (Mitigation) and Regional General Condition 7 (Compensatory Mitigation)

Information pertaining to mitigation can be found at the following link:

<https://www.lrd.usace.army.mil/Missions/Regulatory/Ohio/>

General Condition 25 (Water Quality) and Regional General Condition 6e (Clean Water Act Section 401 Water Quality Certification)

The Ohio Environmental Protection Agency may be contacted at:

Address: Lazarus Government Center
 50 W Town St. Suite 700
 Columbus, Ohio 43215
 Phone: (614) 644-2001

Information pertaining to the Ohio Environmental Protection Agency water quality certification (WQC) program, including the Section 401 Clean Water Act WQC application form, can be obtained at the following link: <https://epa.ohio.gov/divisions-and-offices/surface-water/permitting/water-quality-certification-and-isolated-wetland-permits>

General Condition 24 (Coastal Consistency)

The Ohio Department of Natural Resources may be contacted at:

Address: 2514 Cleveland Road East
Huron, Ohio 44839
Phone: 419-626-7980
888-644-6267 (toll free)

Information pertaining to the Ohio Department of Natural Resources Coastal Management Program, including the Federal Consistency form, can be obtained at the following link: <https://ohiodnr.gov/discover-and-learn/safety-conservation/about-odnr/coastal-management>

General Condition 32 (Pre-Construction Notification) and Regional General Condition 6 (Pre-Construction Notification)

The nationwide permit pre-construction notification form (Form ENG 6082) may be obtained at the following link: https://www.publications.usace.army.mil/Portals/76/Eng_Form_6082_2019Oct.pdf

PCN Submittal:

- a. PCNs may be submitted via the Corps' Regulatory Request System at: <https://rrs.usace.army.mil/rrs/> or saved as a PDF document, and then submitted as an attachment in an email to the respective district, as follows:
 - Buffalo District – LRB.Ohio.RegActions@usace.army.mil
 - Huntington District – LRH.permits@usace.army.mil
 - Pittsburgh District – Regulatory.Permits@usace.army.mil
 - Louisville District – CELRL.Door.To.The.Corps@usace.army.mil
- b. Electronic documents must have sufficient resolution to show project details. The Department of the Army permit application and supporting documents submitted electronically must not exceed 10 megabytes (10MB) per email. Multiple emails may be required to transmit documents to ensure the 10MB limit is not exceeded. Alternatively, use of the Department of Defense Secure Access File Exchange (DoD SAFE) service to transfer large files may be requested in your email.

- c. For tracking and processing purposes, the email should include the following:
 - i. Email Subject Line: Include the name of the applicant, type of Department of the Army permit application request, and location (County and State). Example: RE: Doe, John, Department of the Army permit application and CWA Section 401 Water Quality Certification Request, Fayette County, Ohio;
 - ii. Email Body: 1) Brief description of the proposed project; 2) Contact information (phone number, mailing address, and email address) for the applicant and/or their agent; and 3) The project location: address and latitude/longitude in decimal degrees (e.g., 42.92788° N, 88.36257° W).
- d. If you do not have internet access, information may be submitted through the United States Postal Service to the appropriate Regulatory Office however, it is optimal to expedite processing by providing a complete application package electronically:

United States Army Corps of Engineers, Buffalo District
ATTN: Regulatory Branch
478 Main Street
Buffalo, New York 14202

United States Army Corps of Engineers, Huntington District
ATTN: Regulatory Division
502 Eighth Street
Huntington, West Virginia 25701-2070

United States Army Corps of Engineers, Louisville District
ATTN: CELRL-RD, Room 752
600 Dr. Martin Luther King Jr. Place
Louisville, Kentucky 40202-0059

United States Army Corps of Engineers, Pittsburgh District
William S. Moorhead Federal Building
1000 Liberty Avenue
Regulatory Division, Ste. 2200
Pittsburgh, Pennsylvania 15222-4186

Ordinary High Water Mark

Ordinary high water mark identification and/or delineation for official Corps' Regulatory purposes will continue in accordance with the applicable ordinary high water mark definition in the Federal regulations, Regulatory Guidance Letter 05-05, and any applicable Corps' district policies. However, the [Final National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams](#) and the [Rapid Ordinary High Water Mark \(OHWM\) Field Delineation Data Sheet \(ENG 6250\)](#) may be used as

technical resources to assist with identifying and delineating the ordinary high water mark using a scientifically supported, rapid framework.

Wetland Delineations

The Recommended Minimum Standards for Aquatic Resource Delineation Reports (ARDR) and the Guide for Recording Aquatic Resource Delineations Using Global Navigation Satellite Systems (GNSS) have been posted to the Corps HQ technical and biological resources page here in the wetlands delineation and classification section.

The ARDR document outlines recommended minimum standards for documenting aquatic resource delineations in an ARDR. It includes an attached "Aquatic Resource Delineation Report Template" to help practitioners standardize report format, facilitating efficient USACE verification.

The GNSS provides recommendations for using high-accuracy GNSS receivers and GIS to electronically map aquatic resource boundaries. Consistent application of these guidelines supports accurate data collection, quantification of aquatic resource extent, and spatial assessment of proposed project impacts.

These resources are intended to promote national consistency and accuracy in documenting aquatic resource delineations. Accurate delineations are crucial for assessing project impacts, determining the appropriate level of review, and evaluating compensatory mitigation needs.

May 11, 2026

Mrs. Kim Blasco
Roads Superintendent
Boardman Township
8299 Market Street
Boardman, OH 44512

Erskine Avenue Crossing Improvements Project in Boardman Township, Ohio. Compliance Documentation for Nationwide Permit 3 (Maintenance Activities)

Dear Mrs Blasco:

Verdantas LLC (Verdantas) is pleased to present this Compliance Document for Nationwide Permit (NWP) 3 (Maintenance Activities) to support Boardman Township's (Client) proposed Erskine Avenue Crossing Improvements Project (Project) located in Boardman Township, Mahoning County, Ohio (41.0436430°, -80.6607364°). The proposed is eligible for NWP 3 authorization and does not require Pre-Construction Notification.

Project Description

The Project proposes to replace an existing culvert beneath Erskine Avenue between Southern Boulevard and Market Street. The culvert conveys flow associated with the Boardman Ditch drainage system, a tributary to Cranberry Run; however, the infrastructure is fully buried at the Project location and no open channel or surface water is present. Proposed activities consist of removal of the existing structure and transition chambers, placement of adequate base material to bed a new box culvert, and completion of associated roadway repairs, including subgrade reconstruction, re paving, drainage infrastructure, curbing, sidewalk, and lawn or site appurtenances disturbed by construction

Purpose and Need

The project will re-establish proper drainage, transportation, and safety standards along Erskine Avenue at the existing crossing location.

Surface Waters and Existing Conditions

The proposed project takes place within a developed urban residential neighborhood with maintained right of way and adjacent properties. This infrastructure is completely buried with no open channel within or adjacent to the project area. Dual 60" HDPE culverts flow north into the project area and transition into a 3.5' x 9' box culvert under Erskine Avenue and exits back into dual 60" CMP culverts.

A site review was conducted to document existing conditions in the vicinity of the culvert crossing. No wetlands were observed within or adjacent to the proposed work area. Impacts are proposed to approximately 76 LF of buried perennial stream.

Avoidance & Minimization

The Project has been designed to limit disturbance to the existing roadway prism and previously disturbed areas. Replacement activities are confined to the minimum area necessary to remove and install the buried infrastructure and complete associated roadway improvements.

Direct and Indirect Environmental Effects

Environmental effects associated with the proposed construction will be minimized through the implementation of Best Management Practices (BMPs). Stormwater and erosion-control BMPs will be installed prior to ground disturbance and maintained throughout construction to reduce sedimentation. These measures will remain in place until the site is fully stabilized.

Restoration will include the use of appropriate native seed mixes and allowing temporary erosion-control materials to remain until vegetation is established. Routine inspections before, during, and after construction will help ensure that temporary impacts are minimized.

Compensatory Mitigation

The Project does not propose new or expanded permanent impacts to streams or other aquatic resources. Any temporary impacts associated with removal and replacement of the existing infrastructure will be limited to the immediate vicinity of the previously impacted area and will be restored following construction. Because the Project consists of maintenance and replacement of existing infrastructure and does not result in additional permanent impacts, compensatory mitigation is not required under Nationwide Permit 3.

Endangered Species Act Compliance

The USFWS Information for Planning and Consultation (IPaC) resource list was generated on April 27, 2026, to identify federally listed species with potential to occur within the Project Area. The IPaC review identified the Indiana bat (*Myotis sodalis*; endangered) and monarch butterfly (*Danaus plexippus*; proposed threatened) as species with potential presence. No designated critical habitat occurs within or near the Project Area. The species list and applicable USFWS determination keys (D-Keys) are provided in Appendix C.

The Project proposes no tree clearing or alteration of any bridges that could potentially affect listed bat species.

Floodplain Discussion

A comprehensive review of the Federal Emergency Management Agency (FEMA) floodplain maps was conducted to assess the presence of floodplains within the Project Area. This assessment identified the Project is not located within mapped floodplain.

Nationwide Permit Eligibility

The Project is eligible for non-reporting coverage under Nationwide Permit 3 provided all applicable permit terms and conditions are satisfied. Pre Construction Notification is not required for the proposed activities. The permittee is responsible for ensuring compliance with Nationwide Permit 3 requirements throughout construction. A copy of the Nationwide Permit 3 documentation should be retained on site during construction.

401 Water Quality Certification

The Project meets all of the terms and conditions for coverage under the General Section 401 Water Quality Certification for Nationwide Permits. No Individual Section 401 Water Quality Certification is required.

If you have any questions regarding this document, please contact Carrie Ricker at (330) 322-3691 or by email at cricker@verdantas.com.

Respectfully,



Carrie Ricker, PWS
Project Manager