PROJECT MANUAL

FOR

UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY
NEW HOLLAND PIKE LOW-PRESSURE FORCE MAIN REPLACEMENT PROJECT

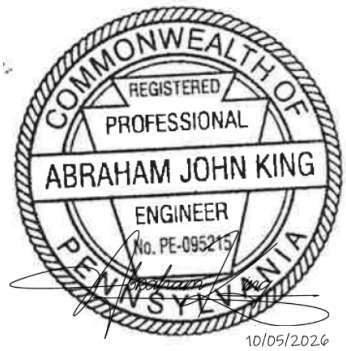
IN

LANCASTER COUNTY

PENNSYLVANIA

OCTOBER 2026





CONTRACT NO. 2026-04 – GENERAL CONSTRUCTION

Project No. 0571404139

Prepared by:

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UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY
NEW HOLLAND PIKE LOW-PRESSURE FORCE MAIN REPLACEMENT PROJECT
CONTRACT 2026-04 – GENERAL CONSTRUCTION

TABLE OF CONTENTS

Division 00 – Bidding and Contracting Requirements

SECTION 001116 – INVITATION TO BID 001116-01
SECTION 002113 – INSTRUCTIONS TO BIDDERS 002113-08
SECTION 004110 – BID FORM UNIT PRICE 004110-06
SECTION 004500 – NON-COLLUSION AFFIDAVIT 004500-02
SECTION 004526 – WORKER'S COMPENSATION AFFIDAVIT 004526-01
SECTION 004551 – NON-DISCRIMINATION AFFIDAVIT 004551-03
SECTION 004546 – PUBLIC WORKS EMPLOYMENT VERIFICATION FORM 004546-01
SECTION 004551 – CFA NON-DISC. SEXUAL HARRASMENT AFF. 004551-01
SECTION 004600 – EXPERIENCE QUESTIONNAIRE 004600-04
SECTION 005200 – AGREEMENT 005200-06
SECTION 006113 – PERFORMANCE BOND 006113-03
SECTION 006115 – PAYMENT BOND 006115-03
SECTION 007000 – GENERAL CONDITIONS 007000-67
SECTION 007300 – SUPPLEMENTARY CONDITIONS 007300-12
SECTION 007343 – PREVAILING WAGE RATES 007343-32

Division 01 – General Requirements

SECTION 011100 – SUMMARY OF PROJECT 011100-02
SECTION 011400 – MAINTENANCE OF OPERATIONS 011400-04
SECTION 012200 – MEASUREMENT AND PAYMENT 012200-10
SECTION 013300 – SUBMITTALS 013300-09
SECTION 014000 – QUALITY CONTROL 014000-08
SECTION 014200 – REFERENCES 014200-02
SECTION 016100 – PRODUCT REQUIREMENTS 016100-05
SECTION 017123 – FIELD ENGINEERING 017123-02
SECTION 017300 – EXECUTION REQUIREMENTS 017300-05
SECTION 017700 – CLOSEOUT PROCEDURES 017700-05
SECTION 017839 – PROJECT RECORD DOCUMENTS 017839-03

TECHNICAL SPECIFICATIONS

Division 02 – Existing Conditions

SECTION 024000 – DEMOLITION 024000-05

Division 31 – Earthwork

SECTION 312300 – EXCAVATION SUPPORT & PROTECTION 312300-04
SECTION 312319 – DEWATERING 312319-03
SECTION 312333 – TRENCHING BACKFILLING AND COMPACTING 312333-10

Division 32 – Exterior Improvements

SECTION 321200 – FLEXIBLE ASPHALT PAVING 321200-03
SECTION 329200 – TURF AND GRASSES 329200-05

Division 33 – Utilities

SECTION 330513 – MANHOLES & STRUCTURES 330513-10
SECTION 333100 – SANITARY UTILITY PIPING & ACCESSORIES 333100-18

LIST OF APPENDICES

APPENDIX A – WQM PERMIT
APPENDIX B – PENNDOT HIGHWAY OCCUPANCY PERMIT
APPENDIX C – PENNDOT HOP PLAN DRAWINGS
APPENDIX D – LSA GRANT

INVITATION TO BID

OWNER: Upper Leacock Township Municipal Authority
161 Newport Road
Leola, PA 17540

ENGINEER: RETTEW Associates, Inc.
3020 Columbia Avenue
Lancaster, PA 17603
(800) 738-8395

The Upper Leacock Township Municipal Authority will receive sealed bids online for the New Holland Pike Low-Pressure Force Main Replacement Project. Bids may be submitted and updated online until 10:00 AM on November 5, 2026. All documents and solicitation details are available any time at http://PennBid.bonfirehub.com.

A voluntary pre-bid meeting will be held on October 29th, 2026 at 1:00 PM at the office of the Owner located at 161 Newport Road, Leola, PA 17540.

A certified check or bid bond for the amount of 10% of the total bid shall be required. Bonds are to be issued by a surety licensed to do business in the Commonwealth of Pennsylvania.

Interested bidders need to register at the PennBID web-site. Once registered, bidders can obtain all project documents and submit and update their bids online.

Bids shall remain open for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. Bids may not be withdrawn during this period. See Instructions to Bidders for other provisions on the time available for acceptance of Bids. All Bidders must bid on all items listed on the Bid Form. The successful Bidder shall be required to furnish performance and payment bonds in the amount of 100% of the Contract Price. The successful Bidder shall substantially complete the project within 315 calendar days of receipt of the Notice to Proceed.

This contract is subject to the following: the Pennsylvania Prevailing Wage Act conditions; the Federal Occupational Safety and Health Act of 1970 (OSHA) conditions; the Pennsylvania Act 229 of 2002; the Pennsylvania One Call Act, also known as the Underground Utility Line Protection Law, Act 287 of 1974, as amended; the Pennsylvania Human Relations Act 222 Conditions; and the non-discrimination in Employment/Contract Compliance Regulations Conditions; requirement of a Non-Collusion Affidavit; and the Pennsylvania Public Works Employment Verification Act, 43 P.S. 167.1-167.11. (added 5/21/2019)

The Upper Leacock Township Municipal Authority reserves the right to accept or reject any or all Bids.

Upper Leacock Township Municipal Authority

James Fisher
Director of Public Works

INSTRUCTIONS TO BIDDERS

I-1 DEFINED TERMS

Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract (EJCDC C-700, 2007 Edition) have the meanings assigned to them in the General Conditions.

Certain additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.

I.1.1 "Bidder" - one who submits a Bid directly to OWNER as distinct from a sub-bidder, who submits a bid to a Bidder. Bidder must complete a minimum of fifty (50) percent of the work on a Project with its own forces.

I.1.2 "Successful Bidder" - the lowest, qualified, responsible and responsive Bidder to whom OWNER, on the basis of OWNER'S evaluation as hereinafter provided, makes an award.

I.1.3 “Contract Documents: - includes the Invitation to Bid, Instructions to Bidders, the Bid Form, and the proposed Contract Forms, Specifications, including all Addenda issued prior to receipt of Bids.

I.1.4 "Issuing Office" - the office from which the Contract Documents are to be issued and where the bidding procedures are to be administered.

I-2 COPIES OF CONTRACT DOCUMENTS

I.2.1 Interested bidders need to register at the PennBID website. Once registered, bidders can obtain all project documents and submit and update their bids online.

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

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

I-3 QUALIFICATIONS OF BIDDERS

I.3.1 Bidder shall submit with bid Section 004600 Experience Questionnaire.

I.3.2 To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit, within five days after Bid opening upon OWNER'S request, all that information as OWNER requires in determining the successful Bidder. Consideration will be given to, but will not be limited to, the following conditions.

Whether the Bidder:

I.3.2.a Maintains a permanent place of business;

I.3.2.b Has adequate equipment to do the Work properly and expeditiously;

I.3.2.c Has suitable financial status to meet obligations incident to the Work;

I.3.2.d Has had experience on Projects of similar character and magnitude;

I.3.2.e Has qualification to do business in the state where the Project is located;

I.3.2.f The amount of other work to which the Bidder is committed may also be considered.

I.3.3 The ENGINEER may require the Bidder to furnish written evidence of the foregoing.

I.3.4 No Bid will be accepted from anyone who is in arrears to the OWNER upon debt or contract, or who is a defaulter on surety or otherwise upon any obligations, or whose work heretofore has been unsatisfactory or dilatory.

I-4 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

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

I.4.1.a To examine thoroughly the Contract Documents and other related data identified in the Document (including "technical data" referred to below);

I.4.1.b To visit the site to become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;

I.4.1.c To consider federal, state and local laws and regulations that may affect cost, progress, performance or furnishing of the Work;

I.4.1.d To study and carefully correlate Bidder's knowledge and observations with the Contract Documents, and such other related data; and

I.4.1.e To promptly notify ENGINEER of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents, and other such related documents; and

I.4.1.f To attend any pre-bid conference as noted or required in the Invitation to Bid.

I.4.2 Reference is made to the Supplementary Conditions for identification of:

I.4.2.a Those reports of explorations and tests of subsurface conditions at the site which have been utilized by ENGINEER in preparation of the Contract Documents. Bidder may rely upon accuracy of the "technical data" contained in such reports but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purposes of bidding or construction.

I.4.2.b Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground facilities) which are at or contiguous to the site which have been utilized by ENGINEER in preparation of the Contract Documents. Bidder may rely upon the accuracy of the "technical data" contained in such drawings but not upon the completeness thereof for the purposes of bidding or construction. Bidder is responsible for any interpretation or conclusions drawn from any "technical data" or any such data, interpretations, opinions or information.

I.4.3 Information and data shown or indicated in the Contract Documents with respect to existing underground facilities at or contiguous to the site is based upon information and data

furnished to OWNER and ENGINEER by owners of such underground facilities or others, and OWNER and ENGINEER do not assume responsibility for the accuracy or completeness thereof unless it is expressively provided otherwise in the Supplementary Conditions.

I.4.4 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground facilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.02, 4.03 and 4.04 of the General Conditions.

I.4.5 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional or supplementary examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

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

I.4.7 Reference is made to the Supplementary Conditions for the identification of the general nature of Work that is to be performed at the site by OWNER or others that relates to the Work for which a Bid is to be submitted. On request, OWNER will provide to each Bidder for examination access to or copies of Contract Documents available to OWNER (other than portions thereof related to price) for such Work.

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

I.4.9 The provisions of Paragraphs I-4.1 through 4.8 inclusive, do not apply to asbestos, polychlorinated biphenyls (PCBs), petroleum, hazardous waste or radioactive material covered by Paragraph 4.06 of the General Conditions.

I-5 AVAILABILITY OF LANDS FOR WORKS, ETC.

I.5.1 The lands upon which Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and

equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.

I-6 INTERPRETATIONS AND ADDENDA

I.6.1 All questions about the meaning or intent of the Contract Documents are to be directed to ENGINEER through the PennBID website and interface. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued through the PennBID website to all parties recorded by ENGINEER as having received the Contract Documents. Questions received less than 10 days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

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

I.6.3 Bidders are responsible for determining that they have received all Addenda issued.

I-7 BID SECURITY

I.7.1 Each Bid must be accompanied by Bid Security made payable to OWNER in an amount of 10 percent of the Bidder's maximum Bid price, unless otherwise modified in the Invitation to Bid, and in the form of a certified or bank check or a Bid Bond issued by a surety meeting the requirements of Paragraph 5.01 of the General Conditions.

I.7.2 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required Contract security within 15 calendar days after the Notice of Award, OWNER may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by the OWNER until the earlier of the seventh day after the effective date of Agreement or the sixtieth day after the Bid opening, whereupon Bid Security furnished by such Bidders will be returned. Bid Security with Bids which are not competitive will be returned within seven calendar days after the Bid opening. Bid securities that are forfeited will be paid to the OWNER as liquidated damages.

I-8 CONTRACT TIME

I.8.1 The numbers of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Bid Form and the Agreement.

I-9 LIQUIDATED DAMAGES

I.9.1 Provisions for liquidated damages, if any, are set forth in the Agreement and Supplementary Conditions.

I-10 SUBSTITUTE OR "OR-EQUIVALENT" ITEMS

I.10.1 The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or “or-equal” item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, Contractor shall either

include such substitutes with his bid or submit application for such after the Effective Date of the Agreement. In either case, the acceptability of such substitute or "or equal" product will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in the General Conditions and may be supplemented in the General

Requirements. If a substitute or "or equal" item is not deemed acceptable by the Engineer, Contractor shall furnish one of the named brand items in the specifications at no additional cost.

I-11 SUBCONTRACTORS, SUPPLIERS AND OTHERS

I.11.1 Qualifications of Subcontractors, Suppliers and others, if any, are set forth in the Supplementary Conditions.

I-12 BID FORM

I.12.1 The Bid Form is available via PennBid's "Bid" tab.

I-13 SUBMISSION OF BIDS

I.13.1 Sealed Bids shall be submitted online via the PennBid. Program (http://pennbid.bonfirehub.com) no later than the time and date indicated in the Invitation to Bid.

I.13.2 Bids shall include the following documents; Bid Security, Bid Form Certification, Non Collusion Affidavit, Workers Comp Affidavit, Public Works Employment Verification, CFA Non Discrimination Sexual Harassment Affidavit , Experience Questionnaire.

I.13.3 OWNER may consider informal any Bid not prepared and submitted in accordance with the provisions hereof.

I.13.4 Bidders are cautioned that it is the responsibility of each individual bidder to assure that their bid is properly submitted prior to the stated time and at the place of the Bid Opening. OWNER is not responsible for bids delays of any nature.

I.13.5 A Bid which includes for any item a Bid Price that is abnormally low or high may be rejected as unbalanced.

I-14 MODIFICATION AND WITHDRAWAL OF BIDS

I.14.1 Bids may be modified or withdrawn at any time prior to the opening of Bids.

I.14.2 Pennsylvania State Requirements:

I.14.2.a. If a Bidder elects to request the withdrawal of its Bid under and pursuant to the provision of the Public Contract Bid Withdrawal Law, as it may be amended from time to time, the rights and obligations of all parties shall be set forth in said Act and the procedure to be followed shall be as provided in said Act, the provisions of which are incorporated herein by reference.

I.15.2.b. Unless otherwise provided by state law, if within two business days after the opening of bids, any Bidder files a duly signed written notice with the OWNER and submits credible evidence that demonstrates to the reasonable satisfaction of the OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid.

I.14.3 Any Bid received after the time and date specified shall not be considered.

I-15 OPENING OF BIDS

I.15.1 Bids will be opened and tabulated through the PennBID website and interface.

I-16 BIDS TO REMAIN SUBJECT TO ACCEPTANCE

I.16.1 Bids shall remain open for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. The OWNER will either award the Contract within the applicable time period or reject all Bids, returning the Bid security to the Bidders. Thirty-day extensions of the date for the award may be made by the mutual written consent of the OWNER and the apparent Successful Bidder.

I-17 AWARD OF CONTRACT

I.17.1 OWNER reserves the right to reject any and all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. OWNER also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate Contract terms with the Successful Bidder.

I.17.2 In evaluating Bids, OWNER will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

I.17.3 OWNER may consider the qualifications and experience of Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers and other persons and organizations must be submitted as provided in the Supplementary Conditions. OWNER also may consider the operating costs, maintenance requirements, performance data and guarantee of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice to Award.

I.17.4 OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of the Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to

Perform and furnish the Work in accordance with the Contract Documents to OWNER’s satisfaction within the prescribed time.

I.17.5 If the Contract is to be awarded, it will be awarded to the lowest Bidder whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the Project.

I.17.6 If the Contract is to be awarded, OWNER will give the Successful Bidder a Notice of Award within 60 calendar days or as otherwise stipulated in the Invitation to Bid, after the day of the Bid opening.

I-18 CONTRACT SECURITY

I.18.1 Paragraph 5.01 of the General Conditions and the Supplementary Conditions set forth OWNER'S requirements as to Performance, Payment and other Bonds. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required Performance and Payment Bonds as applicable.

I-19 SIGNING OF AGREEMENT

I.19.1 When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within 15 days of the Notice to Proceed thereafter CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement and the attached documents to OWNER with the required Bonds. Thereafter, OWNER shall deliver one fully signed counterpart to CONTRACTOR.

I-20 SALES AND USE TAX

I.20.1 OWNER may be exempt from certain sales or use taxes. CONTRACTOR shall verify the status of OWNER, and OWNER will supply CONTRACTOR with certain exemption certificates upon request and OWNER will execute exemption certificates presented by CONTRACTOR upon request.

I-21 RETAINAGE

I.21.1 Provisions concerning retainage and CONTRACTOR'S rights to deposit securities in lieu of retainage are set forth in the Agreement and the Supplementary Conditions.

I-22 NON-COLLUSION

I.22.1 All Bidders are required to complete a Non-Collusion Affidavit. This affidavit may be required on all projects involving public funding as provided in Section 7 of the Pennsylvania Anti-Bid-Rigging Act. The Non-Collusion Affidavit must be submitted with the Bid.

I-23 SAFETY AND HEALTH REGULATIONS

I.23.1 This Project is subject to the safety and Health Regulations (CFR 29, Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on June 24, 1974 and CFR 29, Part 1910, General Industry Safety and Health Regulations Identified as Applicable to Construction.

I.23.2 The Successful Bidder shall comply with the Department of Labor Safety and Health Regulations for Construction promulgated under the Occupational Safety and Health Act of 1970 (PL-91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL-91-54).

I-24 MANUFACTURER’S EXPERIENCE

I.24.1 Wherever it may be written that an equipment manufacturer must have a specified period of experience with its product, equipment which does not meet the specified experience period can be considered if the equipment supplier or manufacturer is willing to provide a bond or cash deposit for the duration of the specified time period which will guarantee replacement of that equipment in the event of failure. Such bond shall be an Efficiency Guarantee Bond, executed on forms to be approved by the OWNER.

I-25 ACCESS TO WORK

I.25.1 Representatives of the OWNER, State, and any local agencies having a direct interest in the Work shall have access to the Work wherever it is in preparation or progress and the CONTRACTOR shall provide proper facilities for such access and inspection.

I-26 WAGE RATES

I.26.1 Minimum wage rates as determined by the Commonwealth of Pennsylvania, Department of Labor and Industry, Prevailing Wage Division, shall apply to this Project. It is the responsibility of the CONTRACTOR, before Bid Opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed Work under this Contract.

I-27 PUBLIC WORKS EMPLOYMENT VERIFICATION ACT

I.27.1 The Contractor and its Subcontractor(s) shall comply with the Public Works Employment Verification Act, which was effective January 1, 2013. The Contractor shall submit with its bid as set forth a fully-executed Public Works Employment Verification form acknowledging its responsibilities under and compliance with the Act. A blank form is attached hereto.

Prior to Commencing work on the Project, any Subcontractor shall provide the Owner with the attached Verification form acknowledging its responsibilities and its compliance with the Act.

The Contractor and any and all Subcontractors shall participate in the E-Verify Program operated by the Department of Homeland Security, and shall, subject to the Federal law governing the use of the E-Verify Program, use the E-Verify Program to verify employment eligibility of each new employee. In conducting the verification required by the Act, the Contractor and Subcontractors shall not discriminate against an employee on the basis of race, ethnicity, color or national origin.

Contracts between a contractor and its subcontractors and between a subcontractor and its subcontractors shall contain information about the requirements of this Act.

END OF SECTION

BID FORM

Project Identification: Contract No. 2026-04 – General Construction
New Holland Pike Low-Pressure Force Main Replacement Project

RETTEW Project No.: 0571404139

Name of Bidder: _____

This Bid is submitted to: Upper Leacock Township Municipal Authority
161 Newport Road
Leola, PA 17540

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid Security. This Bid will remain subject to acceptance for 60 days after the day of Bid opening unless award is delayed by a required approval of another government agency, the sale of bonds, or the award of a grant or grants, in which case this Bid shall remain subject to acceptance for 120 days after the bid opening date as provided by the Act of November 26, 1978 (P.L. 1309, No. 317), as amended by the Act of December 12, 1994 (P.L. 1042, No. 142). Bidder will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within 15 days after the date of OWNER'S Notice of Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

    a. Bidder has examined and carefully studied the Contract Documents and the following Addenda receipt of all which is hereby acknowledged:

    _____
    _____
    _____

    b. Bidder has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance and furnishing of the Work.
    c. Bidder is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect cost, progress, performance and furnishing of the Work.
    d. If applicable, Bidder has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except underground facilities) that have been identified in the Supplementary Conditions as referenced in Article 4 of the General Conditions. Bidder accepts the determination set forth in Paragraph SC-4.02 of the

Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which Bidder is entitled to rely as provided in Article 4 of the General Conditions. Bidder acknowledges that such reports and drawings are not Contract Documents and may not be complete for Bidder's purposes. Bidder acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to underground facilities at or contiguous to the site. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise that may affect cost, progress, performance or furnishing of the Work or that may relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto. Bidder does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.

e. Bidder is aware of the general nature of the Work to be performed by OWNER and others at the site that relates to work for which this Bid is submitted as indicated in the Contract Documents.

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

g. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that Bidder has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to Bidder, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.

h. This Bid is genuine and not made in the interest of or on the behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER. Bidder is aware that they must complete a minimum of fifty (50) percent of the work on the project with its own forces.

4. Bidder will complete the Work in accordance with the Contract documents for the prices entered into the electronic Bid Form on the PennBID website, which is located under the “Bid” tab. (The electronic Bid Form may be downloaded and printed for the Bidder’s use.) the unit price summation is identified as:

CONTRACT NO. 2026-04

	Item	Estimated Quantity	Unit	Unit Price	Total Price
GENERAL CONDITIONS					
1	Mobilization/Demobilization and Closeout	1	LS		
2	Erosion and Sedimentation Control	1	LS		
3	Maintenance and Protection of Traffic	1	LS		
DEMOLITION					
4	Small Tree/Shrub Removal	5	EA		
5	Demolition of Existing Valve Vaults/Manholes	7	EA		
HDPE LOW-PRESSURE SEWER LINE (OPEN CUT)					
6A	3” HDPE DR-17 Force Main (Improved Area)	53	LF		
6B	4” HDPE DR-17 Force Main (Improved Area)	18	LF		
6C	6” HDPE DR-17 Force Main (Improved Area)	489	LF		
6D	8” HDPE DR-17 Force Main (Improved Area)	68	LF		
6E	8” HDPE DR-17 Force Main (Unimproved Area)	126	LF		
6F	10” HDPE DR-17 Force Main (Improved Area)	1472	LF		
6G	12” HDPE DR-17 Force Main (Improved Area)	8351	LF		
6H	12” HDPE DR-17 Force Main (Unimproved Area)	760	LF		
6I	1.5” HDPE DR-11 Service Lateral	1250	LF		
PVC LOW-PRESSURE SEWER LINE (OPEN CUT)					
7A	2” PVC SDR-21 Force Main (Improved Area)	26	LF		
7B	2.5” PVC SDR-21 Force Main (Improved Area)	5	LF		
PVC GRAVITY SEWER (OPEN CUT)					
8	12” PVC SDR-35 Gravity Sewer Line (Improved Area, 0’-8’ Deep)	23	LF		
9	4’ Pre-Cast Sanitary Sewer Manhole	8	VF		
10	4’ Doghouse Sanitary Sewer Manhole	8	VF		
11	Standard Manhole Frame and Cover	2	EA		
FORCEMAIN VALVES					
12A	3” Plug Valve & Box	1	EA		
12B	4” Plug Valve & Box	4	EA		
12C	6” Plug Valve & Box	2	EA		
12D	8” Plug Valve & Box	1	EA		
12E	12” Plug Valve & Box	5	EA		
13A	2” Ball Valve & Box	4	EA		
13B	2.5” Ball Valve & Box	1	EA		
14	4” Insertion Valve	1	EA		
15	3” Combination Air Release Valve & Vault	5	EA		
MAINLINE CONNECTIONS					
16	Mainline Interconnections	12	EA		
17	Dart Interconnection & South Maple Vault Rehab	1	LS		
LATERAL CONNECTIONS					
18	Lateral Reconnection (Short Side)	98	EA		
19	Lateral Reconnection (Long Side)	82	EA		
MISCELLANEOUS					
20	Unclassified Excavation (Contingent)	100	CY		

Item		Estimated Quantity	Unit	Unit Price	Total Price
21A	Unmarked Utility Repair (Contingent) - Telecom	3	EA		
21B	Unmarked Utility Repair (Contingent) – 6" Waterline	3	EA		
21C	Unmarked Utility Repair (Contingent) – 8" Waterline	3	EA		
21D	Unmarked Utility Repair (Contingent) – Water Lateral	3	EA		
21E	Unmarked Utility Repair (Contingent) – Gas Main	3	EA		
21F	Unmarked Utility Repair (Contingent) – Gas Lateral	3	EA		
21G	Unmarked Utility Repair (Contingent) – Sanitary Sewer Lateral	3	EA		
22A	Line Stops/Mech Plugs (Additional, Contingent) – 2"	2	EA		
22B	Line Stops/Mech Plugs (Additional, Contingent) – 2.5"	2	EA		
22C	Line Stops/Mech Plugs (Additional, Contingent) – 3"	2	EA		
22D	Line Stops/Mech Plugs (Additional, Contingent) – 4"	2	EA		
SURFACE RESTORATION					
23	Unimproved Surface - Lawns/Field	1003	LF		
24	Improved Surface - Gravel	150	LF		
25	Improved Surface – Asphalt Driveway	50	LF		
26	Improved Surface – Municipal Road	430	LF		
27	Improved Surface – Concrete Sidewalk	420	LF		
28	Improved Surface – Full Depth State Road Restoration	10744	LF		
29	Improved Surface – Temporary Road Restoration (State & Municipal)	11174	LF		
30	Improved Surface – Concrete curb	250	LF		

TOTAL UNIT PRICE BASE BID SUMMATION:	(figures)
Dollars and	Cents (written)

5. Bidder agrees that the Work will be substantially complete within 315 calendar days after the date when the contract time commences to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment within 14 calendar days after the date of Substantial Completion. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.
6. The following shall be submitted with the BID on the PennBID website: Bid Security, Bid Form Certification, Non Collusion Affidavit, Workers Comp Affidavit, Public Works Employment Verification, CFA Non Discrimination Sexual Harassment Affidavit, Experience Questionnaire
7. Communications concerning this Bid shall be addressed to the address of Bidder indicated below or the following address:

   _____

   _____

   _____

   _____

8. The terms used in this Bid that are defined in the General Conditions or Instructions will have the meanings assigned to them in the General Conditions or Instructions.

SUBMITTED on .

If Bidder is:

An Individual

By: _____ (SEAL)
(INDIVIDUAL'S NAME)

doing business as _____
Business Address: _____

_____

Phone No.: _____

A Partnership

By: _____ (SEAL)
(FIRM'S NAME)

_____
(GENERAL PARTNER)

Business Address: _____

_____

Phone No.: _____

A Corporation

By: _____ (SEAL)
(CORPORATION'S NAME)

_____
(STATE OF INCORPORATION)

By: _____ (SEAL)
(NAME OF PERSON AUTHORIZED TO SIGN)

_____
(TITLE)

(Corporate Seal)

Attest: _____
(SECRETARY)

Business Address: _____

_____

Phone No.: _____

A Joint Venture

By: _____ (SEAL)
(NAME)

_____
(ADDRESS)

By: _____ (SEAL)
(NAME)

_____
(ADDRESS)

Phone Number and Address for Receipt of Official Communications.

_____

_____

_____

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above.)

NON-COLLUSION AFFIDAVIT

State of _____:

: SS

County of _____:

I state that I am _____ of _____, and that I am authorized to make
(Title) (Name of My Firm)
this Affidavit on behalf of my firm, and its owners, directors and officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

1. The price(s) and amount of this Bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder or potential bidder.
2. Neither the price(s) nor the amount of this Bid, and neither the approximate price(s) nor approximate amount of this Bid, have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before Bid opening.
3. No attempt has been made or will be made to induce any firm or person to refrain from bidding on this Contract, or to submit a bid higher than this Bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.
4. The Bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.
5. _____, its affiliates, subsidiaries, officers, directors and employees are not
(Name of My Firm)
currently under investigation by any governmental agency and have not in the last 3 years been convicted or found liable for any act prohibited by state or federal law in any jurisdiction, involving conspiracy or collusion* with respect to bidding on any public contract, except as follows:

   I state that _____ understands and acknowledges that the above representations
(Name of My Firm)
   are material and important, and will be relied on by _____ in awarding the
(Name of Public Entity)
   contract(s) for which this bid is submitted. I understand and my firm understands that any misstatement of this affidavit is and shall be treated as fraudulent concealment from _____ of the true facts relating to submission of bids for this contract.
(Name of Public Entity)

_____ _____
(Name and Company Position)

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF _____, 20__.

_____
Notary Public My Commission Expires: _____

* Involvement in this activity does not prohibit the _____ from accepting this bid or
(Name of Public Entity)
awarding a contract; but this may be a ground for determining whether the _____should
(Name of Public Entity)
decide to award a contract based on a lack of responsibility.

INSTRUCTIONS FOR NON-COLLUSION AFFIDAVIT

1. This Non-Collusion Affidavit is material to any contract awarded pursuant to this Bid. According to the Pennsylvania Antibid-Rigging Act, 73 P.S. § 1611 et seq, governmental agencies may require Non-Collusion Affidavits to be submitted together with bids.
2. This Non-Collusion Affidavit must be executed by the member, officer or employee of the Bidder who makes the final decision on prices and the amount quoted in the Bid.
3. Bid rigging and other efforts to restrain competition, and making of false sworn statements in connection with the submission of Bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure themselves that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the Bidder with responsibilities for the preparation, approval or submission of the Bid.
4. In the case of a Bid submitted by a joint venture, each party to the venture must be identified in the Bid documents, and an Affidavit must be submitted separately on behalf of each party.
5. The term "Complementary Bid" as used in the Affidavit has the meaning commonly associated with that term in the bidding process, and includes the knowing submission of bids higher than the bid of another firm, any intentionally high or noncompetitive bid, and any other form of bid submitted for the purpose of giving a false appearance of competition.
6. Failure to file an Affidavit in compliance with these instructions will result in disqualification of the Bid.

WORKER'S COMPENSATION AFFIDAVIT

STATE OF)
(ss
COUNTY OF)

being duly sworn according to law deposes and says that they have accepted the provisions of the Worker's Compensation Act of 1915 of the Commonwealth of Pennsylvania, with its supplements and amendments, and have insured their liability thereunder in accordance with the terms of said Act with .
(SURETY COMPANY)

_____
Contractor (type or print name)

By: _____
Signature

Sworn to and subscribed before me this day of .

_____
Notary Public
My Commission Expires:

COMMONWEALTH FINANCING AUTHORITY

NON-DISCRIMINATION/SEXUAL HARASSMENT AFFIDAVIT

Upper Leacock Township Municipal Authority

New Holland Pike Low-Pressure Force Main Replacement Project

1. NONDISCRIMINATION/SEXUAL HARASSMENT

a. **Representations.** The Grantee represents that it is presently in compliance with and will remain in compliance with all applicable federal, state, and local laws, regulations, and policies relating to nondiscrimination and sexual harassment for the term of the agreement. The Grantee shall, upon request and within the time periods requested by the Commonwealth, furnish all necessary employment documents and records, including EEO-1 reports, and permit access to its books, records, and accounts by the Commonwealth for the purpose of ascertaining compliance with provisions of this Nondiscrimination/Sexual Harassment Clause.

b. **Nondiscrimination/Sexual Harassment Obligations.** The Grantee shall not:

   i. in any manner discriminate in the hiring of any employee(s) for the performance of the activities required under this agreement or any subgrant agreement, contract, or subcontract, by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the Pennsylvania Human Relations Act ("PHRA") and applicable federal laws, against any citizen of this Commonwealth who is qualified and available to perform the work to which the employment relates.

   ii. in any manner discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the PHRA and applicable federal laws, against or intimidate any of its employees.

   iii. in any manner discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of the PHRA and applicable federal laws, in the provision of services under this agreement or any subgrant agreement, contract, or subcontract.

   iv. in any manner discriminate by reason of race, gender, creed, color, sexual orientation, gender identity or expression, or in violation of PHRA and applicable federal laws, against any subgrantee, contractor, subcontractor, or supplier who is qualified to perform the work to which this agreement relates.

   v. in any manner discriminate against employees by reason of participation in or decision to refrain from participating in labor activities protected under the Public Employee Relations Act, Pennsylvania Labor Relations Act, or National Labor Relations Act, as applicable, and to the extent determined by entities charged with the Acts' enforcement and shall comply with any provision of law establishing organizations as employees' exclusive representatives.

c. **Establishment of Grantee Policy.** The Grantee shall establish and maintain a written nondiscrimination and sexual harassment policy that complies with the applicable law and these Nondiscrimination/Sexual Harassment provisions and shall inform its employees in writing of the policy. The policy must contain a provision that states that sexual harassment will not be tolerated and employees who practice it will be disciplined. For the entire period of this agreement, the Grantee shall: (1) post its written nondiscrimination and sexual harassment policy or these Nondiscrimination/Sexual Harassment provisions conspicuously in easily accessible and well-lighted places

customarily frequented by employees at or near where the grant activities are performed; or (2) provide electronic notice of the policy or this clause to its employees not less than annually.

d. **Notification of Violations.** The Grantee's obligations pursuant to these provisions are ongoing from the effective date and through the termination date of the agreement. Accordingly, the Grantee shall notify the Commonwealth if, at any time during the term of this agreement, it becomes aware of any actions or occurrences that would result in violation of these provisions.

e. **Cancellation or Termination of Agreement.** The Commonwealth may cancel or terminate this agreement and all money due or to become due under this agreement may be forfeited for a violation of the terms and conditions of these Nondiscrimination/Sexual Harassment provisions. In addition, the granting agency may proceed with debarment or suspension and may place the Grantee in the Contractor Responsibility File.

f. **Subgrant Agreements, Contracts, and Subcontracts**. The Grantee shall include these Nondiscrimination/Sexual Harassment provisions in its subgrant agreements, contracts, and subcontracts with all subgrantees, contractors, and subcontractors providing goods or services under this agreement. The incorporation of these provisions in the Grantor's subgrants, contracts, or subcontracts does not create privity of contract between the Commonwealth and any subgrantee, contractor, or subcontractor, and no third-party beneficiaries are created by those provisions. If the Grantee becomes aware of a subgrantee's, contractor's, or subcontractor's violation of these provisions, the Grantee shall use its best efforts to ensure the subgrantee's, contractor's, or subcontractor's compliance with these provisions.

_____ _____

Signature Date

_____

Print

COMMONWEALTH OF PENNSYLVANIA

PUBLIC WORKS EMPLOYMENT VERIFICATION FORM

Date _____

Business or Organization Name (Employer) _____

Address _____

City _____ **State** _____ **Zip Code** _____

☐ **Contractor** ☐ **Subcontractor (check one)**

Contracting Public Body Upper Leacock Township Municipal Authority

Contract/Project No Contract No. 2026-04

Project Description New Holland Pike Low-Pressure Force Main Replacement Project

Project Location Upper Leacock Township, Lancaster County, PA

As a contractor/subcontractor for the above referenced public works contract, I hereby affirm that as of the above date, our company is in compliance with the Public Works Employment Verification Act ('the Act') through utilization of the federal E-Verify Program (EVP) operated by the United States Department of Homeland Security. To the best of my/our knowledge, all employees hired post January 1, 2013 are authorized to work in the United States.

It is also agreed to that all public works contractors/subcontractors will utilize the federal EVP to verify the employment eligibility of each new hire within five (5) business days of the employees start date throughout the duration of the public works contract. Documentation confirming the use of the federal EVP upon each new hire shall be maintained in the event of an investigation or audit.

I, _____ **, authorized representative of the company above, attest that the Information contained in this verification form is true and correct and understand that the submission of false or misleading information in connection with the above verification shall be subject to sanctions provided by law.**

_____

Authorized Representative Signature

EXPERIENCE QUESTIONNAIRE

PROJECT IDENTIFICATION: _____

_____

CONTRACT NUMBER AND IDENTIFICATION: _____
SUBMITTED TO: _____
BY: _____
PRINCIPAL OFFICE ADDRESS: _____

_____

_____

(The signer of this questionnaire guarantees the truth and accuracy of all statements and of all answers to interrogatories hereinafter made.)

1. What type of business is Bidder's organization? _____

_____

2. How many years has Bidder's organization been performing work, as a contractor of subcontractor, of the type required for this Project?

_____

3. Provide information on all projects currently in progress.

Contract Amount	Type of Work	Scheduled Completion	Name and Address of Owner	Engineer / Architect

4. What projects, comparable to this Project, has Bidder's organization completed within the last five years? What was the contract amount for each?

Contract Amount	Type of Work	When Completed	Name and Address of Owner	Engineer / Architect

Contract Amount	Type of Work	When Completed	Name and Address of Owner	Engineer / Architect

5. Has Bidder's organization ever defaulted on any contract or failed to complete any contract?

   If so, where and why?

   And if so, did your Performance Bond Surety get involved?. ☐ Yes ☐ No
   If yes, identify the Surety bond.

6. Do you know of any reason that you would not be able to obtain the Bonds and Insurance required for this Project?
   If yes, explain.
7. Are there any judgments, claims, arbitration proceedings, or suits pending or outstanding against Bidder's organization or officers?

8. Has Bidder's organization filed any lawsuits or requested arbitration with regard to construction contract(s) in the past five years?

9. Within the past five years, has any officer or principal of Bidder's organization been an officer or principal of another organization which failed to complete a construction contract?

10. Has Bidder's organization operated under a different business name?

11. List names, addresses, and phone numbers of individuals or organizations that can be contacted by OWNER or ENGINEER to obtain references:

12. What is the construction experience of the principal individuals of Bidder's organization?

Individual's Name	Present Position or Office	Magnitude and Type of Work	In What Capacity?

STATE OF: PENNSYLVANIA

COUNTY OF:

_____ being duly sworn deposes and says that he is

_____ of _____

TITLE NAME OF ORGANIZATION

and that all answers to the foregoing questions and all statements therein are true and correct.

_____

SIGNATURE

_____

PRINT OR TYPE NAME BENEATH SIGNATURE

Sworn to before me this day of , 20

My commission expires: _____

_____ _____

SIGNATURE OF NOTARY PUBLIC DATE

_____

PRINT OR TYPE NAME BENEATH SIGNATURE

END OF EXPERIENCE QUESTIONNAIRE

LIST OF PROPOSED SUBCONTRACTORS

PROJECT IDENTIFICATION: _____

CONTRACT NUMBER AND IDENTIFICATION: Contract No.: _____

SUBMITTED TO: _____

List proposed subcontracts as required in Instructions to Bidders

Description of Subcontract	Subcontractor's Name	Subcontractor's Address

_____
SIGNATURE

_____
TYPED OR PRINTED NAME

_____ _____
DATE TITLE

NOTE: This List of Proposed Subcontractors must be submitted with the Bid, and failure to submit will be considered justification for rejection of the Bid.

END OF LIST OF SUBCONTRACTORS

AGREEMENT

This Agreement is dated as of the _____day of _____ in the year _____ by and between the [Owners Name] (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Contract No.: 2026-04 – General Construction
Project Name: New Holland Pike Low-Pressure Force Main Replacement Project
Description: Replacement of the existing low-pressure sewer forcemain along New Holland Pike in Upper Leacock Township, PA.

Article 2. ENGINEER

The project has been designed by RETTEW Associates, Inc., 3020 Columbia Avenue, Lancaster, PA 17603 who is hereinafter called ENGINEER and who is to act as OWNER'S representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME

3.1 The Work will be substantially completed within [315] days from the date when the Contract Time commences to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Article 14 of the General Conditions within [14] days from the date of Substantial Completion.

3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in Paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER One thousand four hundred and eighty dollars ($1,480.00) for each day that expires after the time specified in Paragraph 3.1 for substantial completion until the Work is substantially complete. After substantial completion if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by the OWNER, CONTRACTOR shall pay OWNER Seven hundred and sixty dollars ($760.00) for each day that expires after the time specified in Paragraph 3.1 for completion and readiness for final payment.

Article 4. CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds as indicated on attached Bid Form, in the amount of _____.

Article 5. PAYMENT PROCEDURES

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

5.1 Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER. All progress payments will be on the basis of the progress of the Work measured by the schedule of values established in Article 2 of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

5.1.1 Prior to substantial completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with Article 14 of the General Conditions.

OWNER may retain 10 percent of the amount of all progress payment due until 50 percent of the Work has been completed. When the contract is 50 percent completed, exclusive of stored materials, the CONTRACTOR may apply for a reduction in retainage. At that time, one-half of the amount retained by OWNER shall be returned to CONTRACTOR provided that ENGINEER approves the Application for Payment, that the CONTRACTOR is making satisfactory progress and there is no specific cause for greater withholding. OWNER, after 50 percent of the Work has been completed, may retain 5 percent of the remaining work completed. For materials and equipment not incorporated in the Work (but delivered, suitably stored, and accompanied by documentation satisfactory to Owner as provided in Article 14 of the General Conditions), payment will be made with 10% retained. After substantial completion, OWNER may retain 1-1/2 times such amount as is required to complete any, then remaining, uncompleted items as certified by ENGINEER.

5.1.2. Upon substantial completion, payment will be made in an amount sufficient to increase total payments to CONTRACTOR to 100 percent of the contract price, less than such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with Article 14 of the General Conditions.

5.2 Final Payment. Upon final completion and acceptance of the Work in accordance with Article 14 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said Article 14.

Article 6. INTEREST

All money not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum rate allowed by law at the place of the project.

Article 7. CONTRACTOR'S REPRESENTATIONS

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

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

7.2 CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

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

7.4 If applicable, CONTRACTOR has studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except underground facilities) which have been identified in the Supplementary Conditions as provided in Article 4 of the General Conditions. CONTRACTOR accepts the determination set forth in Paragraph SC-4.02 of the Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in Article 4 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR'S purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to underground facilities at or contiguous to the site. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the contract price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

7.5 CONTRACTOR is aware of the general nature of Work to be performed by OWNER and others at the site related to the Work as indicated in the Contract Documents.

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

7.7 CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

7.8 CONTRACTOR agrees that any procedures set forth in this Agreement for adjustment of contract time, contract price or any payments due CONTRACTOR, including any limitations on the types and amounts of damages, costs or expenses which may be recovered are exclusive. CONTRACTOR agrees that it expressly waives any claim or cause of action against RETTEW Associates, Inc. and its subconsultants to recover any costs or expenses incurred, or damages sustained, in connection with the Project under any theory of law including negligence and negligent misrepresentation, except to the extent

that damages resulted from personal injury or property damage. CONTRACTOR'S exclusive remedy for the recovery of any such costs, expenses or damages is as provided under this Agreement, even if this Agreement provides for waiver of recovery of such costs, expenses or damages. ENGINEER is an intended third-party beneficiary of this provision.

Article 8. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR concerning the Work consist of the following *(Complete for 04, 05 as appropriate):*

8.1 This Agreement (pages A-1 to A-6, inclusive).

8.2 Exhibits to this Agreement (Exhibit A through Exhibit _____ , inclusive).

8.3 Performance, Payment and other bonds.

8.4 Notice of Award.

8.5 General Conditions (pages 1 to 67, inclusive).

8.6 Supplementary Conditions (pages SC-1 to SC-12 inclusive).

8.7 Specifications bearing the title [New Holland Pike Low-Pressure Force Main Replacement Project, Project No. 0571404139, and consisting of the divisions and specifications as listed in Table of Contents thereof.

8.8 Drawings, numbered G-01 through D-04, inclusive with each sheet bearing the following general title:

New Holland Pike Low-Pressure Force Main Replacement Project

8.9 Addenda numbers _____ to _____ , inclusive.

8.10 CONTRACTOR'S Bid (pages BF-1 through BF-_____, inclusive) marked Exhibit A.

8.11 Documentation submitted by CONTRACTOR prior to Notice of Award (in whole marked as Exhibit _____).

8.12 The following which may be delivered or issued after the effective date of the Agreement and are not attached hereto: All written amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to Paragraphs 3.4 and 3.5 of the General Conditions.

8.13 The documents listed in Paragraphs 8.2 et. seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Article 3 of the General Conditions.

Article 9. MISCELLANEOUS

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

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

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

9.4. Any provision or part of the Contract Documents held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed or replace such stricken provision or part thereof with a valid and forcible provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____.

OWNER: _____	CONTRACTOR: _____
By: _____	By: _____
(CORPORATE SEAL)	(CORPORATE SEAL)
Attest: _____	Attest: _____
Address for giving notices	Address for giving notices
_____	_____
_____	_____
_____	_____
(If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement.	License No.: _____
	Agent for service of process:
	_____
	(If CONTRACTOR is a corporation, attach evidence of authority to sign.

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:

Upper Leacock Township Municipal Authority
161 Newport Road,
Leola, PA 17540

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

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

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

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

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

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

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

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

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

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

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

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

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

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

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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

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

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

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

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

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

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

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

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

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

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

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety

refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

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

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

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

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

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

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

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

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

16. Modifications to this Bond are as follows:

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PAYMENT BOND

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:
Upper Leacock Township Municipal Authority
161 Newport Road,
Leola, PA 17540

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

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

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

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

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond shall arise after the following:

    5.1 Claimants who do not have a direct contract with the Contractor,

        5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

    7.2 Pay or arrange for payment of any undisputed amounts.

    7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

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

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first

occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

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

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. **Definitions**

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

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

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

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

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

18. Modifications to this Bond are as follows:

Engineers Joint Documents Committee
Design and Construction Related Documents
Instructions and License Agreement

Instructions

Before you use any EJCDC document:

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2. Similarly, your software may change the font specification if the font is not available in your system. It will choose a font that is close in appearance. In this event, the pagination may not match the control set.

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4. Also note the instruction in the License Agreement about the EJCDC copyright.

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You should carefully read the following terms and conditions before using this document. Commencement of use of this document indicates your acceptance of these terms and conditions. If you do not agree to them, you should promptly return the materials to the vendor, and your money will be refunded.

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If you transfer possession of any copy, modification or merged portion of EJCDC Design and Construction Related Documents to another party, your license is automatically terminated.

Term:

The license is effective until terminated. You may terminate it at any time by destroying **EJCDC Design and Construction Related Documents** altogether with all copies, modifications and merged portions in any form. It will also terminate upon conditions set forth elsewhere in this Agreement or if you fail to comply with any term or condition of this Agreement. You agree upon such termination to destroy **EJCDC Design and Construction Related Documents** along with all copies, modifications and merged portions in any form.

Limited Warranty:

EJCDC warrants the CDs and diskettes on which **EJCDC Design and Construction Related Documents** is furnished to be free from defects in materials and workmanship under

normal use for a period of ninety (90) days from the date of delivery to you as evidenced by a copy of your receipt.

There is no other warranty of any kind, either expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

EJCDC does not warrant that the functions contained in **EJCDC Design and Construction Related Documents** will meet your requirements or that the operation of **EJCDC Design and Construction Related Documents** will be uninterrupted or error free.

Limitations of Remedies:

EJCDC's entire liability and your exclusive remedy shall be:

1. the replacement of any document not meeting EJCDC's "Limited Warranty" which is returned to EJCDC's selling agent with a copy of your receipt, or

2. if EJCDC's selling agent is unable to deliver a replacement CD or diskette which is free of defects in materials and workmanship, you may terminate this Agreement by returning EJCDC Document and your money will be refunded.

In no event will EJCDC be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use **EJCDC Design and Construction Related Documents** even if EJCDC has been advised of the possibility of such damages, or for any claim by any other party.

Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.

General:

You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement. Any attempt otherwise to sublicense, assign, or transfer any of the rights, duties, or obligations hereunder is void.

This Agreement shall be governed by the laws of the State of Virginia. Should you have any questions concerning this Agreement, you may contact EJCDC by writing to:

Arthur Schwartz, Esq.
General Counsel
National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314

Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the agreement between us which supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this agreement.

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

ACEC
American Council of Engineering Companies

The Associated General Contractors of America
Skill Responsibility Integrity

ASCE American Society of Civil Engineers

National Society of Professional Engineers
Professional Engineers in Private Practice

AMERICAN COUNCIL OF ENGINEERING COMPANIES

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

Page

Article 1 – Definitions and Terminology 1
1.01 Defined Terms 1
1.02 Terminology 5

Article 2 – Preliminary Matters 6
2.01 Delivery of Bonds and Evidence of Insurance 6
2.02 Copies of Documents 6
2.03 Commencement of Contract Times; Notice to Proceed 6
2.04 Starting the Work 6
2.05 Before Starting Construction 7
2.06 Preconstruction Conference; Designation of Authorized Representatives 7
2.07 Initial Acceptance of Schedules 7

Article 3 – Contract Documents: Intent, Amending, Reuse 8
3.01 Intent 8
3.02 Reference Standards 8
3.03 Reporting and Resolving Discrepancies 8
3.04 Amending and Supplementing Contract Documents 9
3.05 Reuse of Documents 9
3.06 Electronic Data 10

Article 4 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions; Reference Points 10
4.01 Availability of Lands 10
4.02 Subsurface and Physical Conditions 11
4.03 Differing Subsurface or Physical Conditions 11
4.04 Underground Facilities 13
4.05 Reference Points 14
4.06 Hazardous Environmental Condition at Site 14

Article 5 – Bonds and Insurance 16
5.01 Performance, Payment, and Other Bonds 16
5.02 Licensed Sureties and Insurers 16
5.03 Certificates of Insurance 16
5.04 Contractor's Insurance 17
5.05 Owner's Liability Insurance 18
5.06 Property Insurance 18
5.07 Waiver of Rights 20
5.08 Receipt and Application of Insurance Proceeds 20
5.09 Acceptance of Bonds and Insurance; Option to Replace 21

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5.10 Partial Utilization, Acknowledgment of Property Insurer 21

Article 6 – Contractor's Responsibilities 21
6.01 Supervision and Superintendence 21
6.02 Labor; Working Hours 22
6.03 Services, Materials, and Equipment 22
6.04 Progress Schedule 22
6.05 Substitutes and "Or-Equals" 23
6.06 Concerning Subcontractors, Suppliers, and Others 25
6.07 Patent Fees and Royalties 26
6.08 Permits 27
6.09 Laws and Regulations 27
6.10 Taxes 27
6.11 Use of Site and Other Areas 27
6.12 Record Documents 28
6.13 Safety and Protection 28
6.14 Safety Representative 29
6.15 Hazard Communication Programs 30
6.16 Emergencies 30
6.17 Shop Drawings and Samples 30
6.18 Continuing the Work 32
6.19 Contractor's General Warranty and Guarantee 32
6.20 Indemnification 33
6.21 Delegation of Professional Design Services 33

Article 7 – Other Work at the Site 34
7.01 Related Work at Site 34
7.02 Coordination 35
7.03 Legal Relationships 35

Article 8 – Owner's Responsibilities 35
8.01 Communications to Contractor 35
8.02 Replacement of Engineer 35
8.03 Furnish Data 35
8.04 Pay When Due 36
8.05 Lands and Easements; Reports and Tests 36
8.06 Insurance 36
8.07 Change Orders 36
8.08 Inspections, Tests, and Approvals 36
8.09 Limitations on Owner's Responsibilities 36
8.10 Undisclosed Hazardous Environmental Condition 36
8.11 Evidence of Financial Arrangements 36
8.12 Compliance with Safety Program 36

Article 9 – Engineer's Status During Construction 37
9.01 Owner's Representative 37
9.02 Visits to Site 37
9.03 Project Representative 37

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9.04 Authorized Variations in Work 37
9.05 Rejecting Defective Work 38
9.06 Shop Drawings, Change Orders and Payments 38
9.07 Determinations for Unit Price Work 38
9.08 Decisions on Requirements of Contract Documents and Acceptability of Work 38
9.09 Limitations on Engineer's Authority and Responsibilities 39
9.10 Compliance with Safety Program 39

Article 10 – Changes in the Work; Claims 39
10.01 Authorized Changes in the Work 39
10.02 Unauthorized Changes in the Work 40
10.03 Execution of Change Orders 40
10.04 Notification to Surety 40
10.05 Claims 40

Article 11 – Cost of the Work; Allowances; Unit Price Work 41
11.01 Cost of the Work 41
11.02 Allowances 44
11.03 Unit Price Work 44

Article 12 – Change of Contract Price; Change of Contract Times 45
12.01 Change of Contract Price 45
12.02 Change of Contract Times 46
12.03 Delays 46

Article 13 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work 47
13.01 Notice of Defects 47
13.02 Access to Work 47
13.03 Tests and Inspections 47
13.04 Uncovering Work 48
13.05 Owner May Stop the Work 49
13.06 Correction or Removal of Defective Work 49
13.07 Correction Period 49
13.08 Acceptance of Defective Work 50
13.09 Owner May Correct Defective Work 50

Article 14 – Payments to Contractor and Completion 51
14.01 Schedule of Values 51
14.02 Progress Payments 51
14.03 Contractor's Warranty of Title 54
14.04 Substantial Completion 54
14.05 Partial Utilization 55
14.06 Final Inspection 55
14.07 Final Payment 56
14.08 Final Completion Delayed 57
14.09 Waiver of Claims 57

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Article 15 – Suspension of Work and Termination 57
15.01 Owner May Suspend Work 57
15.02 Owner May Terminate for Cause 57
15.03 Owner May Terminate For Convenience 59
15.04 Contractor May Stop Work or Terminate 59

Article 16 – Dispute Resolution 60
16.01 Methods and Procedures 60

Article 17 – Miscellaneous 60
17.01 Giving Notice 60
17.02 Computation of Times 60
17.03 Cumulative Remedies 61
17.04 Survival of Obligations 61
17.05 Controlling Law 61
17.06 Headings 61

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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*— ***see No. 11, Contract.***

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 and/or Agreement* —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. ***The terms Contract and Agreement are the same and may be used interchangeably.***

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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.

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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.

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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

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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.

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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 the applicable Additional Insured Endorsements*** (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***, unless otherwise specified.***

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.

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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.

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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 certify to Engineer in writing that it checked and verified figures and field measurements and provide Engineer with a copy of its results.*** Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor

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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:

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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

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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;

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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.

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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.

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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

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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.

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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

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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

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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

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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.

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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

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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.

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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.

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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.

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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

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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

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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.

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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:*

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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

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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. ***If the Contractor's designated safety representative ceases***

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in that role, then Contractor shall immediately designate another person to fill the role and notify Owner and Engineer in writing.

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.

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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

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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

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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,

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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

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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.

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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.

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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

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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.

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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

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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

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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

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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,

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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, expediters, 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

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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.

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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

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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

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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;

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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

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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

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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,

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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

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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

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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.

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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

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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.

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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:*

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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

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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.

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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.

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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.

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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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SUPPLEMENTARY CONDITIONS

Modifications to the STANDARD GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. C-700, 2007 edition) and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

SC-2.01.A DELIVERY OF BONDS AND EVIDENCE OF INSURANCE

Add the following to the end of paragraph A:

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 licensed to transact such business in the state in which the Work is to be performed, acceptable to OWNER, and, if Federal agencies are participating in the project, named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury.

SC-2.02.A COPIES OF DOCUMENTS

Amend the first sentence of paragraph 2.02A to read as follows:

The OWNER will furnish to the CONTRACTOR one (1) paper copy and an electronic PDF copy of the Contract Documents.

SC-2.03 COMMENCEMENT OF CONTRACT TIMES; NOTICE TO PROCEED

Delete paragraph 2.03.A in its entirety and insert the following in its place:

The Contract Times will commence to run on the date indicated on the Notice to Proceed.

SC-2.06 PRECONSTRUCTION CONFERENCE

Amend the first sentence of paragraph 2.06.A by inserting these words at the beginning:

“Prior to the issuance of the Notice to Proceed,”

SC-3.06 ELECTRONIC DATA

Add the following subparagraph 3.06.A.1:

1. Electronic Data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or

Engineer, that is accompanied by and verified with electronic delivery and read receipts, shall be considered as printed or hard copies which may be relied upon subject to the provisions of Paragraphs 3.06.B and 3.06.C below.

SC-4.02 SUBSURFACE AND PHYSICAL CONDITIONS

Add the following new paragraphs immediately after paragraph 4.02.B:

SC-4.02.C In the preparation of Drawings and Specifications, ENGINEER or ENGINEER'S Consultants relied upon the following reports of physical conditions in or relating to existing surface or subsurface structures (except Underground Facilities) that are at or contiguous to the Site:

1. None.

SC-4.02 D In the preparation of Drawings and Specifications, ENGINEER or ENGINEER'S Consultants relied upon the following drawings of physical conditions in or relating to existing surface or subsurface structures (except Underground Facilities) that are at or contiguous to the Site:

1. Bareville Pump Station Record Drawings, June 25, 2008.
2. Municipal Authority GIS System

SC-4.02 E Copies of reports and drawings itemized in SC-4.02.C and SC-4.02.D that are not included with Bidding Documents may be examined at OWNER's Office during regular business hours. These reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which CONTRACTOR may rely as identified and established above are incorporated therein by reference. CONTRACTOR is not entitled to rely upon other information and data utilized by ENGINEER and ENGINEER'S Consultants in the preparation of Drawings and Specifications.

SC-4.04 UNDERGROUND FACILITIES

Add the following new paragraph immediately after paragraph 4.04.B.2:

3. The CONTRACTOR shall further be bound by the provisions of the Pennsylvania One Call Act, also known as the Underground Utility Line Protection Law, Act 287 of 1974, as amended. Under no circumstances shall the CONTRACTOR be entitled to any adjustment in Contract Price and/or Contract Times where CONTRACTOR has failed to comply with such Act.

SC-5.04 CONTRACTOR'S LIABILITY INSURANCE
Add the following new paragraph immediately after Paragraph 5.04.B:

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

1. Workers' Compensation, and related coverage's under paragraphs 5.04.A.1. and A.2 of the General Conditions:

a.	Commonwealth of Pennsylvania:	Statutory
b.	Applicable Federal:	Statutory

c. Employer's Liability: $100,000/$500,000/$100,000

2. CONTRACTOR'S General Liability Insurance under paragraph 5.04.A.3 through A.6 of the General Conditions which shall also include completed operations and product liability coverage's and eliminate the exclusion with respect to property under the care, custody, and control of CONTRACTOR:

a.	General Aggregate	$2,000,000
b.	Products – Completed Operations Aggregate	$2,000,000
c.	Personal and Advertising Injury	$1,000,000
d.	Each Occurrence (Bodily Injury and Property Damage)	$1,000,000
e.	Property Damage liability insurance will provide Explosion, Collapse, and Underground coverage's where applicable.	
f.	Excess or Umbrella Liability	
	Annual Aggregate	$2,000,000
	Each Occurrence	$2,000,000

3. Automobile Liability under paragraph 5.04.A.6.of the General Conditions including Owned, Hired, and Non-Owned Vehicles.

a.	Bodily Injury and Personal Injury:	
	Each Person	$1,000,000
	Each Accident	$1,000,000
b.	Property Damage: Each Accident	$500,000
c.	Combined Single Limit of	$1,000,000

4. The Contractual Liability coverage required by paragraph 5.04.B.4. of the General Conditions shall provide coverage for not less than the following amounts:

a.	Bodily Injury:	
	Each Occurrence	$1,000,000
	Each Accident	$1,000,000
	Annual Aggregate	$2,000,000
b.	Property Damage:	

Each Occurrence	$1,000,000
Each Accident	$1,000,000
Annual Aggregate	$2,000,000

5. The following are the OWNER'S Consultants which are to be included as additional insured's under the CONTRACTOR'S Liability Insurance:

   a. RETTEW Associates, Inc.
   b. Commonwealth of Pennsylvania

SC-5.05 OWNER'S LIABILITY INSURANCE

Add the following language to the end of paragraph 5.05.A:

Such coverage, if elected by the OWNER, shall be in addition to the coverage provided for OWNER under the CONTRACTOR'S Liability Insurance policy as required by paragraph 5.04.

SC-5.06.A PROPERTY INSURANCE

Delete Paragraph 5.06.A in its entirety and insert the following in its place:

CONTRACTOR shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:

1. Include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER'S Consultants and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. Be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, false work, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, 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; and

5. Allow for partial utilization of the Work by OWNER;

6. Include testing and startup; and

7. Be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

8. CONTRACTOR shall be responsible for any deductible or self-insured retention.

9. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph SC-5.06 shall comply with the requirements of paragraph 5.06.C of the General Conditions.

10. The following are the OWNER'S Consultants whose interests are to be included in the insurance coverage's required by this paragraph 5.06.A:

    a. RETTEW Associates, Inc.
    b. Commonwealth of Pennsylvania

SC-5.06.B EQUIPMENT BREAKDOWN INSURANCE

Amend the first sentence of paragraph 5.06.B by deleting the first word "OWNER" and inserting in its place: the word "CONTRACTOR"

SC-5.06.E DEDUCTIBLE

Delete paragraph 5.06.E. in its entirety and insert in its place the following new paragraph 5.06.E:

The maximum deductible amount for all property insurance to be provided by CONTRACTOR as required for this Contract shall be not greater than $10,000 or such higher amount as may be acceptable to OWNER. Approval of a deductible limit higher than $10,000 shall be requested in writing and shall be accompanied by a copy of the insurance policy. Approval of such higher amount shall only be valid if received in writing from OWNER.

SC-5.08 RECEIPT AND APPLICATION OF INSURANCE PROCEEDS

Delete the word "OWNER" throughout the paragraph and replace with "CONTRACTOR"

SC-5.09 ACCEPTANCE OF BONDS AND INSURANCE; OPTION TO REPLACE

Delete paragraph 5.09.A. of the General Conditions in its entirety and insert the following in its place:

If OWNER has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by CONTRACTOR in accordance with Article 5 on the basis of non-conformance with the Contract Documents, OWNER shall so notify CONTRACTOR in writing thereof within ten days after receipt of the certificates (or other evidence requested) required by paragraph 2.01.B. and receipt of the Bonds. CONTRACTOR shall provide to the OWNER such additional information in respect of insurance and Bonds provided as the OWNER may reasonably request. If CONTRACTOR does not purchase or maintain all of the Bonds and insurance required of CONTRACTOR by the Contract Documents, CONTRACTOR shall notify OWNER 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, OWNER may elect to obtain equivalent Bonds or insurance to protect it interests at the expense of CONTRACTOR, and a Change Order shall be issued to adjust the Contract Price accordingly, but only if the cost of such insurance or Bond has not already been provided for in the Contract Price.

ENGINEER shall have no duty to, or responsibility for, giving advice as to the acceptability of any form of insurance policy or extent of coverage or for requiring the CONTRACTOR or OWNER to obtain or provide any form of insurance.

SC-5.11 INSURANCE COMPANY RATING

Add the following paragraph 5.11.A immediately following paragraph 5.10:

All property and liability insurance to be purchased by CONTRACTOR shall be placed with insurance companies that carry a rating of A- or better from A.M. Best and Company Insurance Rating Service.

SC-6.03.D SERVICES, MATERIALS, AND EQUIPMENT

Add the following new paragraph 6.03.D. immediately following paragraph 6.03.C.

No asbestos containing materials of any kind shall be used in construction of this project. The CONTRACTOR shall submit Manufacturer's Safety Data Sheets (MSDS) for all products to be used in the project.

SC-6.06.A CONCERNING SUBCONTRACTORS, SUPPLIERS AND OTHERS

Add the following as the first sentence in paragraph 6.06.A:

Upon written request of OWNER or ENGINEER, CONTRACTOR shall, within five days of the date of such request, provide a list of the names, addresses, phone numbers and fax numbers of all subcontractors and suppliers and the specialties in which they are to be involved with the Work."

SC-6.06.C.3 Add the following sentence at the end of paragraph 6.06.C:

3. OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about Bonds, and amounts paid to CONTRACTOR on account of Work performed for CONTRACTOR by a particular Subcontractor, Supplier, or other individual or entity.

SC-6.08 PERMITS

Add the following paragraph immediately following paragraph 6.08.A:

OWNER shall be responsible for obtaining construction permits and licenses and for paying governmental charges and inspection fees necessary for the prosecution of the Work. This does not include those permits, licenses, and other fees that CONTRACTOR'S are obligated

to pay to comply with the Laws and Regulations governing CONTRACTOR trades and businesses.

SC-6.09 LAWS AND REGULATIONS

Add the following sentence immediately following paragraph 6.09.A:

The Work is subject to the Pennsylvania Steel Products Procurement Act.

SC-6.10 TAXES

Add the following language at the end of the first sentence of paragraph 6.10.A:

OWNER may be exempt from certain sales or use taxes. CONTRACTOR shall verify the status of OWNER, and OWNER will supply CONTRACTOR with certain exemption certificates upon request. OWNER will execute exemption certificates upon request.

SC-6.17.D.4. SHOP DRAWINGS AND SAMPLES

Add the following new paragraph 6.17.D.4 immediately following paragraph 6.17.D.3:

All Shop Drawings and other submittals shall be accompanied by copies of MSDS for each product or material used for information purposes. A set of all MSDS shall be maintained onsite by the CONTRACTOR in accordance with Paragraph 6.15 of the General Conditions.

SC-7.02 COORDINATION

Delete paragraph 7.02.A and 7.02.B of the General Conditions in their entirety and insert the following paragraphs in their place:

A. The General Contractor, Contract No. 2026-04, is responsible for the overall coordination of the construction work, including all other contracts identified in Section 011100 – Summary of Work. General Contractor's responsibilities include, but are not limited to, preparation and coordination of initial progress schedule; periodic reviews and updates; providing copies of shop drawings to affected contractors; coordinating layout; site utilization by all Contractors; inspection and testing; monitoring of temporary services; advising Contractors of Work requiring coordination; startup and intra project communications; and completion and cleanup; all in accordance with the Contract Documents.
B. Each Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs. All Contractors bear a mutual responsibility to coordinate their work with all other contractors. Neither the Owner nor Engineer will have responsibility for coordination.

SC-7.03 LEGAL RELATIONSHIPS

Delete paragraph 7.03.B and 7.03.C of the General Conditions in their entirety and insert the following paragraphs in their place:

B. Should Contractor cause damage to the work or property of any other contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner, Engineer, or the construction coordinator, then Contractor (without involving Owner, Engineer, or construction coordinator) shall either (1) remedy the damage, (2) agree to compensate the other contractor for remedy of the damage, or (3) remedy the damage and attempt to settle with such other contractor by agreement, or otherwise resolve the dispute by arbitration or at law.

C. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other contractor against Owner, Engineer, consultants, or the construction coordinator to the extent said claim is based on or arises out of Contractor's performance of the Work. Should another contractor cause damage to the Work or property of Contractor or should the performance of work by any other contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, or the construction coordinator on account of any such damage or Claim.

D. If Contractor is delayed at any time in performing or furnishing the Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other contractor.

SC-9.01 OWNER'S REPRESENTATIVE

Delete 9.01.A in its entirety and substitute the following:

Engineer will be the OWNER'S representative during the construction period, and his instructions shall be carried into effect promptly and efficiently.

SC-9.03 PROJECT REPRESENTATIVE

Add the following:

9.03.B The Resident Project Representative will serve as the Engineer's liaison with the Contractor, working principally through the Contractor's resident superintendent to assist him in understanding the intent of the Contract Documents.

9.03.C The Resident Project Representative shall conduct on-site observations of the work in progress to confirm that the work is proceeding in accordance with the Contract Documents. He will verify that tests, equipment and systems start-ups and operating and maintenance instructions are conducted as required by the Contract Documents. He will have the authority to disapprove or reject defective work in accordance with Article 13.

SC-9.09 LIMITATIONS OF THE ENGINEER'S AUTHORITY AND RESPONSIBILITIES

Add the following:

9.09.F Except upon written instructions of the Engineer, the Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.

2. Shall not exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Shall not undertake any of the responsibilities of Contractor, Subcontractors or Contractor's superintendent, or expedite the Work.

4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract.

5. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.

SC-11.02 CASH ALLOWANCE

Delete paragraph 11.02 in its entirety.

SC-11.03.D.1 UNIT PRICE WORK

1. Add the following sentence to the end of Paragraph 11.03.D.1.

   For the purpose of this Paragraph, a difference in quantity will be considered material and significant if the quantity of Unit Price Work performed differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement.

SC-14.02.A.3. APPLICATIONS FOR PROGRESS PAYMENT

Delete paragraph 14.02.A.3. in its entirety and insert the following in its place:

3. Progress payment request shall include the percentage of the total amount of the Contract which has been completed from the start-up of the Project to and including the last day of the preceding month, or other mutually agreed upon day of the month accompanied by such data and supporting evidence as OWNER or Engineer may require.

Add the following:

14.02.A.4 Forms to be used shall be prepared by the Contractor and submitted to the Engineer for approval.

14.02.A.5 At the option of the OWNER, partial payment up to the estimated value, less retainage, may be allowed for any materials and equipment not incorporated in the Work, pursuant to the following conditions:

a. Major equipment items stored off site shall be stored in a bonded warehouse and properly maintained during storage.

b. Equipment or materials stored on the site shall be properly stored, protected and maintained.

c. For any partial payment the Contractor shall submit, with his monthly progress payment from each material or equipment manufacturer, bills or invoices indicating actual material cost.

d. Contractor shall submit evidence that he has paid for materials or equipment stored and for which the Engineer has authorized partial payment and previous progress payments, prior to submission of the next monthly payment request.

14.02.A.6 The OWNER will retain ten percent (10%) of the amount of each such estimate until Work covered by the Contract is fifty percent (50%) complete. After fifty percent (50%) of the Work of the original Contract has been completed as evidenced by approved Partial Payment Requests exclusive of stored materials and in the opinion of the OWNER, satisfactory progress is being made, the OWNER may adjust future partial payments so that five percent (5%) of the original Contract Price is retained. For materials and equipment not incorporated in the Work (but delivered, suitably stored, and accompanied by documentation satisfactory to Owner as provided in Article 14 of the General Conditions), payment will be made with 10% retained.

SC-14.02.B REVIEW OF APPLICATIONS

First sentence, delete "10 days", insert "30 days".

SC-14.02.C.1. PAYMENT BECOMES DUE

Delete paragraph 14.02.C.1. of the General Conditions in its entirety and insert with the following in its place:

1. Thirty days after the 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 and soon as practicable subject to any source of funding restrictions and disbursement of funds by the funding agency.

SC-15.02.C.1. OWNER MAY TERMINATE FOR CAUSE

Add the following new paragraph 15.02.C.1 immediately after paragraph 15.02.C of the General Conditions:

1. Termination for Cause: If the CONTRACTOR refuses or fails to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in the Contract Documents, and fails to take such steps to remedy such default within ten (10) days after written notice thereof from the OWNER or as the OWNER shall direct; or if the CONTRACTOR commits a substantial default under any of the terms, provisions, conditions or covenants contained in this contract and fails to take such steps to remedy such default within ten (10) days after written notice thereof from the OWNER or as the OWNER shall direct, the OWNER, by giving the CONTRACTOR five (5) days prior written notice, may terminate the CONTRACTOR's right to proceed with the work. Upon such termination, the OWNER may take over the work and prosecute the same to completion, by contract or otherwise, and the CONTRACTOR and his sureties shall be liable to the OWNER for any additional cost incurred by the OWNER in its completion of the work and they shall also be liable to the OWNER for liquidated damages for any delay in the completion of the work as provided below. If the CONTRACTOR's right to proceed is so terminated, the OWNER may take possession of and utilize in completing the work such materials, tools, equipment, and plant as may be on the site of the work and necessary therefore.

SC-15.03.A OWNER MAY TERMINATE FOR CONVENIENCE

Insert the following into the beginning of paragraph 15.03.A of the General Conditions:

A. The performance of the work may be terminated at any time in whole or from time to time in part by the OWNER for its convenience. Any such termination shall be affected by delivery to the CONTRACTOR of a written notice (“Notice of Termination”) specifying the extent to which performance of the work is terminated and the date upon which termination becomes effective.

SC-15.03.A.5 OWNER MAY TERMINATE FOR CONVENIENCE

Insert the following paragraph immediately after paragraph 15.03.A.4 of the General Conditions:

5. After a receipt of a Notice of Termination, and except as otherwise directed by the OWNER, the CONTRACTOR shall, in good faith, and to the best of its ability, do all things necessary, in light of such notice and of such requests in implementation thereof as the TOWNSHIP may make to assure the efficient, proper closeout of the terminated work (including the protection of the OWNER’s property). Among other things, the CONTRACTOR shall, except as otherwise directed or approved by the OWNER:

(a) stop the work on the date and to the extent specified in the Notice of Termination;

(b) place no further orders or subcontracts for services, equipment or materials except as may be necessary for completion of such portion of the work as is not terminated;

(c) terminate all orders and subcontracts to the extent they relate to the performance of work terminated by the Notice of Termination;

(d) assign to the OWNER, in the manner and to the extent directed by it, all of the right, title and interest of the CONTRACTOR under the orders of subcontracts so terminated, in which case the OWNER shall have the right to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

(e) with the approval of the OWNER, settle all outstanding liabilities and all claims arising out of such termination or orders and subcontracts; and

(f) deliver to the OWNER, when and as directed by the OWNER, all documents and all property which, if the work had been completed, the CONTRACTOR would be required to account for or deliver to the OWNER, and transfer title to such property to the OWNER to the extent not already transferred.

In the event of such termination, there shall be a reduction of the amount of this Contract to reflect the reduction in the work. No cost incurred after the effective date of the Notice of Termination shall be treated as a reimbursable cost unless it relates to carrying out the unterminated portion of the work or taking closeout measures.

SC-16.01 DISPUTE RESOLUTION

Delete Paragraph 16.01 in its entirety and replace it with the follow:

16.01 Methods and Procedures

A. All Claims or counterclaims, disputes, or 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 litigated in the Court of Common Pleas of Lancaster County.

B. Litigation of any Claim or counterclaim, dispute, or other matter that is required to be referred to Engineer initially for decision in accordance with Paragraph 9.09 will not be instituted until the Engineer has rendered a written decision in accordance with Paragraph 10.05.

WAGE DETERMINATION SCHEDULE

PA Prevailing Wage #26-08851

Upper Leacock Township Municipal Authority

New Holland Pike Low-Pressure Force Main Replacement Project

Date of Determination: 10/05/2026

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project Name:	New Holland Pike Low-Pressure Force Main Replacement
General Description:	Replacement of approximately 10,800 LF 8” and 10” ductile iron force main with 9,100 LF 12”, 1,500 LF 10”, and 200 LF 8” DR-17 HDPE pipe, reconnection of approximately eleven (11) low-pressure sewer mains to the new force main, lateral reconnections, lateral valve replacements, and all associated valves and appurtenances for the complete installation of the low pressure forcemain.
Project Locality	Leola, Pennsylvania
Awarding Agency:	Upper Leacock Township Municipal Authority
Contract Award Date:	11/12/2026
Serial Number:	26-08851
Project Classification:	Highway
Determination Date:	10/5/2026
Assigned Field Office:	Harrisburg
Field Office Phone Number:	(717)787-4763
Toll Free Phone Number:	(800)932-0665
Project County:	Lancaster County

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-08851 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	6/30/2025		$41.50	$29.86	$71.36
Asbestos & Insulation Workers	6/29/2026		$43.50	$31.11	$74.61
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2026		$41.34	$19.23	$60.57
Boilermakers	1/1/2026		$58.00	$36.57	$94.57
Bricklayers, Stone Masons, Pointers, Caulkers, Cleaners	5/3/2026		$40.49	$21.51	$62.00
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2026		$36.84	$22.69	$59.53
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2027		$36.84	$24.94	$61.78
Cement Finishers & Plasterers	5/3/2026		$34.23	$22.27	$56.50
Cement Finishers & Plasterers	5/3/2027		$33.49	$25.01	$58.50
Cement Masons	5/1/2025		$36.00	$21.30	$57.30
Dockbuilder, Pile Drivers	5/1/2026		$56.98	$37.99	$94.97
Dockbuilder/Pile Driver Diver	5/1/2026		$66.54	$41.74	$108.28
Dockbuilder/pile driver tender	5/1/2026		$56.98	$37.99	$94.97
Drywall Finisher	5/1/2026		$33.02	$24.00	$57.02
Electricians	9/1/2025		$46.02	$28.39	$74.41
Electricians	8/31/2026		$48.02	$29.46	$77.48
Elevator Constructor	1/1/2025		$63.40	$40.03	$103.43
Elevator Constructor	1/1/2026		$61.26	$45.78	$107.04
Floor Coverer	5/1/2025		$37.78	$19.80	$57.58
Floor Coverer	5/1/2026		$38.59	$20.61	$59.20
Glazier	5/1/2024		$32.46	$20.93	$53.39
Glazier	5/1/2026		$34.05	$22.34	$56.39
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2025		$38.76	$33.38	$72.14
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2026		$40.51	$33.88	$74.39
Laborers (Class 01 - See notes)	5/1/2026		$28.06	$19.08	$47.14
Laborers (Class 02 - See notes)	5/1/2026		$30.06	$19.08	$49.14
Laborers (Class 03 - See notes)	5/1/2026		$32.06	$19.08	$51.14
Laborers (Class 04 - See notes)	5/1/2026		$33.56	$19.08	$52.64
Laborers (Class 05 - See notes)	5/1/2026		$34.06	$19.08	$53.14
Laborers (Class 06 - See notes)	5/1/2026		$30.06	$19.08	$49.14
Marble Mason	5/1/2025		$37.20	$19.24	$56.44
Marble Mason	5/1/2026		$39.15	$19.24	$58.39
Millwright	6/1/2025		$43.00	$22.95	$65.95
Millwright	6/1/2026		$44.97	$22.95	$67.92
Operators (Building, Class 01 - See Notes)	5/1/2025		$44.89	$30.92	$75.81
Operators (Building, Class 01 - See Notes)	5/1/2026		$46.05	$31.76	$77.81
Operators (Building, Class 01A - See Notes)	5/1/2025		$47.14	$31.58	$78.72
Operators (Building, Class 01A - See Notes)	5/1/2026		$48.30	$32.42	$80.72
Operators (Building, Class 02 - See Notes)	5/1/2025		$44.61	$30.83	$75.44
Operators (Building, Class 02 - See Notes)	5/1/2026		$45.77	$31.67	$77.44

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-08851 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Building, Class 02A - See Notes)	5/1/2025		$46.86	$31.50	$78.36
Operators (Building, Class 02A - See Notes)	5/1/2026		$48.02	$32.34	$80.36
Operators (Building, Class 03 - See Notes)	5/1/2025		$41.88	$30.03	$71.91
Operators (Building, Class 03 - See Notes)	5/1/2026		$43.04	$30.87	$73.91
Operators (Building, Class 04 - See Notes)	5/1/2025		$40.74	$29.70	$70.44
Operators (Building, Class 04 - See Notes)	5/1/2026		$41.90	$30.54	$72.44
Operators (Building, Class 05 - See Notes)	5/1/2025		$40.30	$29.56	$69.86
Operators (Building, Class 05 - See Notes)	5/1/2026		$41.45	$30.41	$71.86
Operators (Building, Class 06 - See Notes)	5/1/2025		$39.42	$29.30	$68.72
Operators (Building, Class 06 - See Notes)	5/1/2026		$40.58	$30.14	$70.72
Operators (Building, Class 07A- See Notes)	5/1/2025		$54.56	$35.21	$89.77
Operators (Building, Class 07A- See Notes)	5/1/2026		$56.03	$36.14	$92.17
Operators (Building, Class 07B- See Notes)	5/1/2025		$54.22	$35.10	$89.32
Operators (Building, Class 07B- See Notes)	5/1/2026		$55.69	$36.03	$91.72
Painters Class 1 (see notes)	5/1/2025		$28.42	$18.36	$46.78
Painters Class 1 (see notes)	5/1/2026		$29.70	$18.78	$48.48
Painters - Line Stripping	12/1/2024		$44.12	$27.91	$72.03
Painters - Line Stripping	12/1/2025		$45.12	$29.41	$74.53
Painters Class 2 (see notes)	5/1/2020		$27.43	$15.99	$43.42
Painters Class 3 (see notes)	5/1/2020		$33.18	$15.99	$49.17
Piledrivers	5/1/2021		$43.73	$37.99	$81.72
Plasterers	5/1/2024		$32.93	$21.08	$54.01
Plasterers	5/1/2025		$34.68	$21.23	$55.91
Plumber/Pipefitter	5/1/2025		$45.30	$29.91	$75.21
Plumber/Pipefitter	5/1/2026		$48.30	$30.66	$78.96
Roofers (Composition)	5/1/2025		$46.03	$34.77	$80.80
Roofers (Composition)	5/1/2026		$47.53	$35.22	$82.75
Roofers (Shingle)	5/1/2024		$34.35	$22.20	$56.55
Roofers (Slate & Tile)	5/1/2024		$37.35	$22.20	$59.55
Sheet Metal Workers	6/1/2025		$45.02	$44.71	$89.73
Sheet Metal Workers	6/1/2026		$46.62	$46.36	$92.98
Sign Makers and Hangars	7/15/2025		$33.48	$26.41	$59.89
Sign Makers and Hangars	7/15/2026		$36.38	$25.01	$61.39
Sprinklerfitters	4/1/2025		$49.75	$29.21	$78.96
Sprinklerfitters	4/1/2026		$52.82	$30.56	$83.38
Terrazzo Finisher	5/1/2025		$36.32	$21.68	$58.00
Terrazzo Finisher	5/1/2026		$37.12	$22.76	$59.88
Terrazzo Grinder	5/1/2025		$37.10	$21.68	$58.78
Terrazzo Grinder	5/1/2026		$37.93	$22.76	$60.69
Terrazzo Mechanics	5/1/2025		$37.17	$23.43	$60.60
Terrazzo Mechanics	5/1/2026		$38.06	$24.51	$62.57
Terrazzo Setter	5/1/2019		$31.81	$19.67	$51.48
Tile & Marble Finisher	5/1/2025		$35.31	$16.99	$52.30
Tile & Marble Finisher	5/1/2026		$37.26	$16.99	$54.25

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-08851 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Tile Setter	5/1/2025		$37.20	$19.24	$56.44
Tile Setter	5/1/2026		$39.15	$19.24	$58.39
Truckdriver class 1(see notes)	5/1/2025		$41.87	$0.00	$41.87
Truckdriver class 2 (see notes)	5/1/2025		$41.94	$0.00	$41.94
Truckdriver class 3 (see notes)	5/1/2025		$42.43	$0.00	$42.43
Window Film / Tint Installer	6/1/2025		$27.42	$15.13	$42.55
Window Film / Tint Installer	6/1/2026		$28.35	$15.60	$43.95

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-08851 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter - Chief of Party (Surveying & Layout)	5/1/2021		$41.42	$15.49	$56.91
Carpenter - Instrument Person (Surveying & Layout)	5/1/2021		$36.02	$15.49	$51.51
Carpenter - Rodman I (Survey & Layout)	5/1/2021		$28.82	$12.39	$41.21
Carpenter	5/1/2026		$37.63	$21.18	$58.81
Carpenter Welder	5/1/2026		$38.38	$21.18	$59.56
Carpenters - Piledriver/Welder	1/1/2026		$38.38	$21.18	$59.56
Cement Finishers	1/1/2017		$27.70	$22.20	$49.90
Dockbuilder, Pile Drivers	5/1/2026		$56.98	$37.99	$94.97
Dockbuilder/Pile Driver Diver	5/1/2026		$61.88	$45.47	$107.35
Dockbuilder/pile driver tender	5/1/2026		$56.98	$37.99	$94.97
Electric Lineman	6/3/2024		$52.80	$30.61	$83.41
Electric Lineman	6/2/2025		$55.42	$31.04	$86.46
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2024		$37.26	$32.63	$69.89
Laborers (Class 01 - See notes)	5/1/2025		$26.61	$19.99	$46.60
Laborers (Class 01 - See notes)	5/1/2026		$27.61	$20.44	$48.05
Laborers (Class 02 - See notes)	5/1/2025		$33.23	$19.99	$53.22
Laborers (Class 02 - See notes)	5/1/2026		$34.23	$20.44	$54.67
Laborers (Class 03 - See notes)	5/1/2025		$30.22	$19.99	$50.21
Laborers (Class 03 - See notes)	5/1/2026		$31.22	$20.44	$51.66
Laborers (Class 04 - See notes)	5/1/2025		$30.57	$19.99	$50.56
Laborers (Class 04 - See notes)	5/1/2026		$31.57	$20.44	$52.01
Laborers (Class 05 - See notes)	5/1/2025		$31.24	$19.99	$51.23
Laborers (Class 05 - See notes)	5/1/2026		$32.24	$20.44	$52.68
Laborers (Class 06 - See notes)	5/1/2025		$30.66	$19.99	$50.65
Laborers (Class 06 - See notes)	5/1/2026		$31.66	$20.44	$52.10
Laborers (Class 07 - See notes)	5/1/2025		$30.95	$19.99	$50.94
Laborers (Class 07 - See notes)	5/1/2026		$31.95	$20.44	$52.39
Laborers (Class 08 - See notes)	5/1/2025		$31.43	$19.99	$51.42
Laborers (Class 08 - See notes)	5/1/2026		$32.43	$20.44	$52.87
Millwright	6/1/2025		$45.46	$23.33	$68.79
Millwright	6/1/2026		$47.52	$23.33	$70.85
Operators (Heavy, Class 01 - See Notes)	5/1/2025		$43.46	$30.50	$73.96
Operators (Heavy, Class 01 - See Notes)	5/1/2026		$44.61	$31.35	$75.96
Operators (Heavy, Class 01A - See Notes)	5/1/2025		$45.71	$31.16	$76.87
Operators (Heavy, Class 01A - See Notes)	5/1/2026		$46.86	$32.01	$78.87
Operators (Heavy, Class 02 - See Notes)	5/1/2025		$43.18	$30.41	$73.59
Operators (Heavy, Class 02 - See Notes)	5/1/2026		$44.34	$31.25	$75.59
Operators (Heavy, Class 02A - See Notes)	5/1/2025		$45.43	$31.08	$76.51
Operators (Heavy, Class 02A - See Notes)	5/1/2026		$46.59	$31.92	$78.51
Operators (Heavy, Class 03 - See Notes)	5/1/2025		$40.26	$29.55	$69.81
Operators (Heavy, Class 03 - See Notes)	5/1/2026		$41.43	$30.38	$71.81
Operators (Heavy, Class 04 - See Notes)	5/1/2025		$39.12	$29.22	$68.34
Operators (Heavy, Class 04 - See Notes)	5/1/2026		$40.28	$30.06	$70.34
Operators (Heavy, Class 05 - See Notes)	5/1/2025		$38.67	$29.09	$67.76

BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES

Project: 26-08851 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Heavy, Class 05 - See Notes)	5/1/2026		$39.83	$29.93	$69.76
Operators (Heavy, Class 06 - See Notes)	5/1/2025		$37.80	$28.82	$66.62
Operators (Heavy, Class 06 - See Notes)	5/1/2026		$38.96	$29.66	$68.62
Operators (Heavy, Class 07A - See Notes)	5/1/2025		$52.85	$34.71	$87.56
Operators (Heavy, Class 07A - See Notes)	5/1/2026		$54.32	$35.64	$89.96
Operators (Heavy, Class 07B - See Notes)	5/1/2025		$52.51	$34.60	$87.11
Operators (Heavy, Class 07B - See Notes)	5/1/2026		$53.97	$35.54	$89.51
Operators (Highway, Class 01 - See Notes)	5/1/2025		$42.56	$30.24	$72.80
Operators (Highway, Class 01 - See Notes)	5/1/2026		$43.72	$31.08	$74.80
Operators (Highway, Class 01a - See Notes)	5/1/2025		$44.81	$30.92	$75.73
Operators (Highway, Class 01a - See Notes)	5/1/2026		$45.97	$31.76	$77.73
Operators (Highway, Class 02 - See Notes)	5/1/2025		$41.39	$29.89	$71.28
Operators (Highway, Class 02 - See Notes)	5/1/2026		$42.55	$30.73	$73.28
Operators (Highway, Class 03 - See Notes)	5/1/2025		$40.70	$29.68	$70.38
Operators (Highway, Class 03 - See Notes)	5/1/2026		$41.87	$30.51	$72.38
Operators (Highway, Class 04 - See Notes)	5/1/2025		$40.26	$29.54	$69.80
Operators (Highway, Class 04 - See Notes)	5/1/2026		$41.41	$30.39	$71.80
Operators (Highway, Class 05 - See Notes)	5/1/2025		$39.73	$29.41	$69.14
Operators (Highway, Class 05 - See Notes)	5/1/2026		$40.89	$30.25	$71.14
Operators (Highway, Class 06 - See Notes)	5/1/2025		$42.80	$30.30	$73.10
Operators (Highway, Class 06 - See Notes)	5/1/2026		$43.95	$31.15	$75.10
Operators (Highway, Class 06/A - See Notes)	5/1/2025		$45.05	$30.96	$76.01
Operators (Highway, Class 06/A - See Notes)	5/1/2026		$46.21	$31.80	$78.01
Operators (Highway, Class 07/A - See Notes)	5/1/2025		$51.79	$34.38	$86.17
Operators (Highway, Class 07/A - See Notes)	5/1/2026		$53.25	$35.32	$88.57
Operators (Highway, Class 07/B - See Notes)	5/1/2025		$50.37	$33.97	$84.34
Operators (Highway, Class 07/B - See Notes)	5/1/2026		$51.84	$34.90	$86.74
Painters Class 1 (see notes)	5/1/2018		$23.92	$14.37	$38.29
Painters - Line Stripping	12/1/2024		$44.12	$27.91	$72.03
Painters - Line Stripping	12/1/2025		$45.12	$29.41	$74.53
Painters Class 2 (see notes)	5/1/2025		$30.55	$18.36	$48.91
Painters Class 2 (see notes)	5/1/2026		$33.13	$18.78	$51.91
Painters Class 3 (see notes)	5/1/2025		$36.30	$18.36	$54.66
Painters Class 3 (see notes)	5/1/2026		$38.88	$18.78	$57.66
Piledrivers	5/1/2025		$36.87	$20.49	$57.36
Piledrivers	5/1/2026		$37.63	$21.18	$58.81
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2022		$48.43	$40.28	$88.71
Truckdriver class 1(see notes)	5/1/2025		$41.87	$0.00	$41.87
Truckdriver class 2 (see notes)	5/1/2025		$41.94	$0.00	$41.94
Truckdriver class 3 (see notes)	5/1/2025		$42.43	$0.00	$42.43

ASBESTOS REMOVAL -- ASBESTOS WORKER/LABORER

AMENDED FOR 11/21/97

The removal of asbestos containing materials should be handled as follows:

1. The removal of all insulation materials, whether they contain asbestos or not, from mechanical systems (pipes, boilers, ducts, flues, breachings, etc.) will be recognized as work to be classified as Asbestos Worker.

2. On all mechanical systems (pipes, boilers, ducts, flues, breachings, etc.) that are going to be scrapped, the removal of all insulating material, whether they contain asbestos or not, will be classified as Laborers.

3. The removal of all asbestos containing materials from walls, ceilings, floors, columns and all other non-mechanical structures and surfaces, etc., will be held to the classification of Laborers (with the exception of roofing materials).

4. The term "removal" shall not include sealing, labeling and dropping of scrap material into appropriate containers. After the drop, the final disposal will be classified as Laborers.

5. The loading at the designated area of all materials that have been removed, bagged and tagged, as well as clean-up and all unloading, burying and other work required at the disposal site should be classified as Laborers.

Definition for 22 County Building Construction Operators

Tioga, Bradford, Lycoming, Sullivan, Union, Montour, Columbia, Snyder, Northumberland, Juniata, Perry, Dauphin, Cumberland, Lebanon, York, Lancaster, Adams, Schuylkill, Berks, Lehigh, Northampton, Carbon

Operators Class 1

Machines Doing Hook Work	Cableways
Any Machine Handling Machinery	Drag Lines
Cable Spinning Machines	Derricks
Helicopter	All types of Overhead Cranes
All Types of Cranes *	High Rail/Burro Crane
Rail Loader (Winch Boom Type)	

Machines Similar to above including remote control equipment

* On all machines with booms, jibs, masts and leads 100 feet from ground up, fifty ($0.50) cents per hour additional will be paid for each increment of 25 feet over 100 feet. On cranes with booms (including jibs, masts and leads, etc.), 200 feet and over, two (2) operators shall be required, no oilers will be required, with seventy-five ($0.75) cents in increments of 25 feet.

Tower cranes calculated from ground up and out for purpose of boom pay.

Operators Class 1a

Machines Doing Hook Work	High Rail/Burro Crane 15 Ton and Over (Factory Rating)
Machines Handling Machinery	Rail Loader, Winch Boom Type, 15 Ton and Over (Factory Rating)
All Types of Cranes 15 Ton and Over (Factory Rating)	Equipment in this wage group that does not require an oiler

Machines Similar to above including remote control equipment

Operators Class 2

Keystones	Bundle Puller Extractors (Tubular Type)
All Types of Shovels	Scrapers & Tournapulls
All Types of Backhoes	Spreaders
Trench Shovels	Tree Spade
Trenching Machines	Bulldozers & Tractors
Hoists With Two Towers	Vermeer Saw
All Pavers (Blacktop & Concrete)	Side Boom
Building Hoists (Double Drum)	Rollers (High Grade Finishing)
All Front-End Loaders	Mechanic-Welders
Tandem Scrapers	Chipper With Boom
Pippin Type Backhoes	Motor Patrols
Hydro Ax	Concrete Breaking Machines
Boat Captains	Concrete Pumps
Milling Machines	Fine Grade Machines
Batch Plant Operators (Concrete)	Grease Trucks
Bobcat Type (All Attachments)	Directional Boring Machines
All Autograde & Concrete Finishing Machines (Excluding Trowel Machines)	Production Switch Tamper
Drills, Self-Contained Rotary Drills	Ballast Regulators
Fork Lifts (20 Feet & Over)	Tie Replacer
Gradalls	Rail/Road Loader
Mucking Machines in Tunnel	Power Jack Liner

Machines Similar to above including remote control equipment

Operators Class 2a

Crawler Backhoes Over One Cubic Yard	Equipment 15 Ton and Over

Crawler Gradalls Over One Cubic Yard	Concrete Pumps 92 feet of Boom Length (150 yd. pour or less)
Hydraulic Backhoes Over One Cubic Yard	Equipment in this wage group that does not require an oiler

Machines Similar to above including remote control equipment

Operators Class 3

Conveyors	Second Class Drill, Self-Contained Rotary Drills
Building Hoists (Single Drum)	Fork Lift Trucks (Under 20 Feet Lift)
High or Low Pressure Boilers	Stump Grinder
Well Drillers	Miscellaneous Equipment Operator
Asphalt Plant Engineers	Tireman (For Power Equipment)
Ditch Witch Type Trenchers	
Core Drill Operator	

Machines Similar to above including remote control equipment

Operators Class 4

Welding Machines	Concrete Breaking Machines (Guillotine)
Well Points	Rollers
Compressors	Seaman Pulverizing Mixer
Pumps	Grout Pump
Heaters	Power Broom
Farm Tractors	Forced Air Propane Heater
Form Line Graders	Seeding Spreader
Road Finishing Machines	

Machines Similar to above including remote control equipment

Operators Class 5

Fireman

Machines Similar to above including remote control equipment

Operators Class 6

Oilers & Deck Hands (personnel Boats)	Core Drill 2 nd Class

Machines Similar to above including remote control equipment

Operators Class 7 (A) (Toxic/Hazardous Waste Removal)

Machines Doing Hook Work	Derricks
Any Machine Handling Machinery	All Types of Overhead Cranes
Cable Spinning Machines	High Rail/Burro Crane
Helicopters	Rail Loader (Winch Boom Type)
All Types of Cranes	
Cableways	
Drag Lines	

Machines Similar to above including remote control equipment

Operators Class 7 (B) (Toxic/Hazardous Waste Removal)

Keystones	Bundle Puller Extractors (Tubular Type)
All Types of Shovels	Scrapers & Tournapulls
All Types of Backhoes	Spreaders
Trench Shovels	Tree Spade
Trenching Machines	Bulldozers & Tractors
Hoists With Two Towers	Side Boom
All Pavers (Blacktop & Concrete)	Rollers (High Grade Finishing)

Building Hoists (double Drum)	Vermeer Saw
Gradalls	Mechanic – Welders
Mucking Machines in Tunnel	Chipper With Boom
All Front-End Loaders	Motor Patrols
Tandem Scrapers	Concrete Breaking Machines
Directional Boring Machines	Milling Machines
Pippin Type Backhoes	Fine Grade Machines
Hydro Ax	Concrete Pumps
Boat Captains	Grease Trucks
Finishing Machines (Excluding Trowel Machines)	Bobcat Type (All Attachments)
Power Jack Liner	Rail/Road Loader
Tie Replacer	Production Switch Tamper
Batch plant Operators (Concrete)	Ballast Regulators
Drills, Self-Contained Rotary Drills	
Fork Lifts (20 Feet & Over)	

Machines Similar to above including remote control equipment

Definition for 29 County Heavy Equipment Operators

Tioga, Bradford, Lycoming, Sullivan, Union, Montour, Columbia, Snyder, Northumberland, Juniata, Perry, Dauphin, Cumberland, Lebanon, York, Lancaster, Adams, Schuylkill, Berks, Lehigh, Northampton, Carbon, Susquehanna, Wayne, Wyoming, Lackawanna, Pike, Luzerne, & Monroe

Operators Class 1

Machines Doing Hook Work	Cableways
Any Machine Handling Machinery	Drag Lines
Cable Spinning Machines	Derricks
Helicopters	High Rail/Burro Crane
All Types of Cranes *	Rail Loader (Winch Boom Type)

Machines Similar to above including remote control equipment

* On all machines with booms, jibs, masts and leads 100 feet from ground up, fifty ($0.50) cents per hour additional will be paid for each increment of 25 feet over 100 feet. On cranes with booms (including jibs, masts and leads, etc.), 200 feet and over, two (2) operators shall be required, no oilers will be required, with seventy-five ($0.75) cents in increments of 25 feet.

Operators Class 1a

Machines Doing Hook Work	High Rail/Burro Crane 15 Ton and Over (Factory Rating)
Machines Handling Machinery	Rail Loader, Winch Boom Type, 15 Ton and Over (Factory Rating)
All Types of Cranes 15 Ton and Over (Factory Rating)	Equipment in this wage group that does not require an oiler

Operators Class 2

Keystones	
All Types of Shovels	Drills, Self-Contained Rotary Drills

All Types of Backhoes	Concrete Pumps
Trench Shovels	Fork Lifts (20 Feet & Over)
Trenching Machines	Grease Truck
Hoists With Two Towers	Scrapers & Tournapulls
All Pavers (Blacktop & Concrete)	Side Boom
All Types of Overhead Cranes	Spreaders
Building Hoists (Double Drum)	Bobcat Type (All Attachments)
Concrete Breaking Machines	Bulldozers & Tractors
Gradalls	Vermeer Saw
All Autograde & Concrete Finishing Machines	Boring Machines Including Directional Boring Machines
Mucking Machines in Tunnel	Tree Spade
All Front-End Loaders	Hydro Ax
Bundle Puller Extractors (Tubular)	Chipper with Boom
Tandem Scrapers	Production Switch Tamper
Pippin Type Backhoes	Ballast Regulators
Rollers (High Grade Finishing)	Tie Replacer
Boat Captains	Rail/Road Loader
Mechanic-Welder	Power Jack Liner
Batch Plant Operators (Concrete)	
Motor Patrols	

Machines Similar to above including remote control equipment

Operators Class 2a

Crawler Backhoes Over One Cubic Yard	Equipment 15 Ton and Over

Crawler Gradalls Over One Cubic Yard	Concrete Pumps 92 feet of Boom Length (150 yd. pour or less)
Hydraulic Backhoes Over One Cubic Yard	Equipment in this wage group that does not require an oiler

Operators Class 3

Conveyors	Fork Lift Trucks (Under 20 Feet Lift)
Building Hoists (Single Drum)	Second Class Driller
High Or Low Pressure Boilers	Self Contained Rotary Drills
Well Drillers	Fine Grade Machines
Asphalt Plant Engineers	Stump Grinder
Ditch Witch Type Trenchers	Tireman (For Power Equipment)
Core Drill Operator	

Machines Similar to above including remote control equipment

Operators Class 4

Welding Machines	Concrete Breaking Machines (Guillotine Type)
Well Points	Rollers
Compressors	Seaman Pulverizing Mixer
Pumps	Power Broom
Heaters	Miscellaneous Equipment Operator
Farm Tractors	Seeding Spreader
Form Line Graders	
Road Finishing Machines	

Machines Similar to above including remote control equipment

Operators Class 5

Fireman

Machines Similar to above including remote control equipment

Operators Class 6

Oilers & Deck Hands (Personnel Boats)	Core Drill Helper 2 nd Class

Machines Similar to above including remote control equipment

Operators Class 7 (A) (Toxic/Hazardous Waste Removal)

Machines Doing Hook Work	Drag Lines
Any Machine Handling Machinery	Derricks
Cable Spinning Machines	High Rail/Burro Crane
Helicopters	Rail Loader (Winch Boom Type)
All Types of Cranes	
Cableways	

Machines Similar to above including remote control equipment

Operators Class 7 (B) (Toxic/Hazardous Waste Removal)

Keystones	Bundle Puller Extractors (Tubular Type)>
All Types of Shovels	Scrapers & Tournapulls
All Types of Backhoes	Spreaders
Trench Shovels	Tree Spade
Trenching Machines	Bulldozers & Tractors
Hoists With Two Towers	Side Boom
All Pavers (Blacktop Concrete)	Rollers (High Grade Finishing)
All Types of Overhead Cranes	Vermeer Saw
Building Hoists (Double Drum)	Mechanic – Welders
Gradalls	Chipper With Boom

Mucking Machines in Tunnel	Motor Patrols
All Front-End Loaders	Concrete Breaking Machines
Tandem Scrapers	Concrete Pumps
Boring Machines Including Directional Boring Machines	Grease Trucks
Pippin Type Backhoes	Bobcat Type (All Attachments)
Hydro Ax	Production Switch Tamper
Boat Captains	Ballast Regulators
All Autograde & Concrete Finishing Machines (Excluding Trowel Machines)	Tie Replacer
Batch Plant Operators (Concrete)	Rail/Road Loader
Drills, Self-Contained Rotary Drills	Power Jack Liner
Fork Lifts (20 Feet & Over)	

Machines Similar to above including remote control equipment

Definitions for 29 County Heavy, Highway Construction Laborers'

Adams, Berks, Bradford, Carbon, Columbia, Cumberland, Dauphin, Juniata, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Monroe, Montour, Northampton, Northumberland, Perry, Pike, Schuylkill, Snyder, Sullivan, Susquehanna, Tioga, Union, Wayne, Wyoming, & York

Laborers' Class I

Flagperson

Laborers' Class II

Hazardous/Toxic/Asbestos Waste Handler, Lead Paint handler

Laborers' Class III

Asphalt Tamper, Concrete Pitman & Puddler, Highway Guide Rail, Right of Way and Property Fence, Highway Slab Reinforcement Placer Laborer (Landscape, Planters, Seeders, Arborists), Magazine Tender, Rail Trackman & Signalmen, Laser Beam Men for Pipe Laying & Paving Machines, Pneumatic & Electric Tool Operators, Jack Hammers, Paving Breakers, Concrete Saws, Whacker Vibrator, Sheet Hammers, Chainsaws, Pipelayers, Asphalt Rake, Lute or Screed Men, Highway Concrete Block Layers, Walk Behind Rollers, Walk Behind Trencher

Laborers' Class IV

Caisson open Air Below 8', Cofferdam open Air Below 8' where excavating for Circular Caisson and Cofferdam 8' Below Natural elevation of Grade Adjacent to Starting Point, Form Setters Road, Certified Concrete Technician, Concrete Rubber, Wagon Drill, Diamond Point Drill, Guinite Nozzle Operator, Blaster

Laborers' Class V

Foreman, Form Setter, Road Foreman, Reinforced Steel Placer, Bonding Aligning and Securing, Burning and Welding in conjunction with Rebar, Concrete Surfacer

Laborers' Class VI

Outside Laborers in conjunction with Tunnels and Rock Shafts

Laborers' Class VII

Chuck Tenders, Muckers, Nippers, Miners Helpers, Inside Laborers

Laborers' Class VIII

Miners, Drillers, Blasters, Pneumatic Shield Operators, Lining, Spotting and Timber Workers, Rebar Steel Placer, Bonding Aligning and Securing, Welders and Concrete Surfacers

Definitions for 29 County Highway Construction Operators

Tioga, Bradford, Lycoming, Sullivan, Union, Montour, Columbia, Snyder, Northumberland, Juniata, Perry, Dauphin, Cumberland, Lebanon, York, Lancaster, Adams, Schuylkill, Berks, Lehigh, Northampton, Carbon, Susquehanna, Wayne, Wyoming, Lackawanna, Pike, Luzerne, & Monroe

Operators Class 1

All Types of Cranes *

All Type of Backhoes

Drag Line

Keystones

All Types of Shovels

Derricks

Trench Shovels

Trenching Machines

All Pavers (Blacktop & Concrete)

Gradalls

All Front End Loaders
Tandem Scrapers

Pippin Type Backhoes

Boat Captains

Batch Plant With Mixer

Drill Self-Contained (Drillmaster Type)

Milling Machine

Vermeer Saw

Conveyor Loader (Euclid Type)

Bulldozers & Tractors

Log Skidder

Motor Patrols

Chipper With Boom

Mechanic Welders

Hydro Ax

Side Boom

Tree Spade

Bob Cat Type (With Attachments)

Boring Machines Including Directional Boring Machines

All Autograde & Concrete Finishing Machines (Excluding Trowel Machines)

Concrete Breaking Machines

High Rail/Burro Crane

Rail Loader (Winch Boom Type)

Production Switch Tamper

Ballast Regulators

Tie Replacer

Rail/Road Loader

Power Jack Liner

Concrete Pumps

* On all machines with booms, jibs, masts and leads 100 feet and over, twenty-five ($0.25) cents per hour additional will be paid for each increment of 25 feet over 100 feet. On machines with booms (including jibs, masts and leads, etc.), 200 feet and over, two operating engineers shall be required.

Machines Similar to above including remote control equipment

Operators Class 1a

Crawler Backhoes Over One Cubic Yard (Factory Rating)	Cherry Picker Type Machinery and Equipment 15 Tone and Over
Hydraulic Backhoes Over One Cubic Yard (Factory Rating)	Single Person Operation Truck Cranes 15 Ton and Over (Factory Rating)
All Types of Cranes 15 Ton and Over (Factory Rating)	Equipment in this wage group that does not require an oiler

Machines Similar to above including remote control equipment

Operators Class 2

Spreaders	Stump Grinder
Asphalt Plant Engineers	Grease Truck
Rollers (High Grade Finishing)	Fork Lifts (20 Feet & Over)

Machines Similar to above including remote control equipment

Operators Class 3

Welding Machines	Rollers
Well Points	Miscellaneous Equipment Operator
Compressors	Seaman Pulverizing Mixer
Pumps	Tireman (For Power Equipment)

Heaters

Farm Tractors

Form Line Graders

Ditch Witch Type Trencher

Road Finishing Machines

Concrete Breaking Machines (Guillotine Type)

Power Broom Conveyor Landers Other Then Euclid Type

Seeding Spreader

Conveyors

Driller Second Class

Fork Lifts (Under 20 Feet)

Machines Similar to above including remote control equipment

Operators Class 4

Fireman

Machines Similar to above including remote control equipment

Operators Class 5

Oilers & Deck Hands (Personnel Boats)

Machines Similar to above including remote control equipment

Operators Class 6

On All machines with Booms (Including Jibs, Masts Leads, Etc.) 100 Feet

Machines Similar to above including remote control equipment

Operators Class 6a

On all machines with Booms (Including Jibs, Masts Leads, Etc.) 100 Feet 15 Ton and Over (Factory Rating)

Equipment in this wage group that does not require an oiler

Machines Similar to above including remote control equipment

Operators Class 7a (Toxic/Hazardous Waste Removal)

Pile Drivers or Engineers - Working with Dock Builder & Pile Drivers

All Types of Cranes

All Types of Backhoes

Drag Line

Keystones

All Types of Shovels

Derricks

Trench Shovels

Trenching Machines

All Pavers (Blacktop & Concrete)

Gradalls

All Front End Loaders

Tandem Scrapers

Pippin Type Backhoes

Boat Captains

Batch Plant With Mixer

Drill Self-Contained (Drillmaster Type)

CMI Autograde

Vermeer Saw

Scrapers & Tournapulls

Chipper With Boom

Boring Machines Including

Directional Boring Machine

Conveyor Loader (Euclid Type)

Bulldozers & Tractors

Hydro Ax

Concrete pumps

Tree Spade

Motor Patrols

All Autograde & Concrete Machines (Excluding Trowel Machines)

Mechanic Welders

Log Skidder

Concrete Breaking Machines

Side Boom

Bob Cat Type (With Attachments)

Ballast Regulators

Tie Replacer

Rail/Road Loader

Power Jack Liner

Machines Similar to above including remote control equipment

Notes for 29 County Building Common Journeyperson Laborer

Adams, Berks, Bradford, Carbon, Columbia, Cumberland, Dauphin, Juniata, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Monroe, Montour, Northampton, Northumberland, Perry, Pike, Schuylkill, Snyder, Sullivan, Susquehanna, Tioga, Union, Wayne, Wyoming & York

The following updates to the Bureau of Labor Law Compliance's Pennsylvania Building Journeyperson Laborer Notes are meant to provide a reference point for uniformity and clarity throughout the Commonwealth. The Notes may not be comprehensive, and should be read in conformity with the custom and usage of the construction industry in the geographic region in which they are utilized.

CLASS 1

COMMON JOURNEYPERSON

1. Cleaning, scrubbing, washing and polishing floors, furniture and windows (including through the use of bonding or flying cranes); For marble, granite, and terrazzo, cleaning, scrubbing, washing, and polishing after final acceptance.
2. Demolition of interiors and removal of all debris;
3. Grading stone and dirt by hand;
4. Form pinning
5. Pouring handling, and placing of all concrete and related materials and all cure applications;
6. Sheathing, lagging, and mining;
7. Cleaning up debris;
8. Stripping, dismantling, oiling and moving of concrete forms;
9. Loading, unloading and carrying of reinforced steel;
10. Handling and distributing lumber and all other building materials, including final strip, and including materials used or installed by mechanical trades (e.g., electrician, plumber, sheet metal worker, insulator);
11. Unloading, carrying, distributing and laying of pre-cast concrete slabs and planks;
12. Wrecking, moving and demolishing underpinning and shoring of all structures;
13. Using flags and other signaling devices;
14. Performing landscaping and nursery work;
15. Serving as a Toolroom Person, hanging tools, delivering tools;
16. Cleaning precipitators;
17. Watching for fires;
18. Operating conveyors;
19. Using vacuum cleaners of all types (ride or walk-along);
20. Digging and filling holes and trenches using hand tools;
21. Driving stakes;

22. Ripping out material which is to be discarded;
23. Cleaning roof removal materials on the ground. Performs roof removal work for demolition (Roof removal work for roof replacement is performed by roofers);
24. Operating a pressure washer;
25. Unloading, stockpiling and moving materials for carpenters.
26. Operating power buggies and pumps;
27. Operating walk along compacting and vibrating equipment;
28. Operating guniting machines (including potman);
29. Operating steam jennies;
30. Using pumps of 2" and under;
31. Operating burning torches or burners for demolition;
32. Blasting or assisting with blasting;
33. Grading and building scaffolds;
34. Using or assisting with air and hydraulic wagon drills, on or off tracks;
35. Using walk-along or walk behind lifts and similar machines;
36. Serving as a drill runner or drill runner's assistant;
37. Operating a chipping hammer or similar;
38. Mixing mortar or operating a mortar mixing machine (regardless of power used, including starting and stopping);
39. Feeding grout machines and operating grout pumps;
40. Operating concrete saws;
41. Operating air tracks or assisting;
42. Laying on nonmetallic (clay, ironstone, terra cotta, vitrified concrete and plastic) pipe and the making of joints for the same within five feet outside a building, or to the first joint beyond five feet from a building;
43. Operating jackhammers or concrete busters;
44. Operating concrete drills and cutting equipment for trenches, flatwork, and wall coring of multi-use (common) holes;
45. Operating walk behind rollers and similar machines
46. Using a cutting torch for demolition work on steel or other metal structures;
47. Operating salamanders, smudge pots, propane and kerosene burners and all other heating methods;
48. Operating drills and all other pneumatic and electric hand tools for demolition;
49. Using concrete mixers, vibrators and pumps;
50. Operating walk along tamping equipment;
51. Sandblasting (filling the pot, cleaning up of sand, use of the nozzle) pumps 2" or under for demolition;
52. Using welding torches;
53. Working on swing scaffold, sling and Bosun chairs.

CLASS 2

ASBESTOS REMOVAL

Asbestos Removal. Hazardous & Toxic Waste Removal. Lead & Lead-based paint removal. All work in connection with handling, control, removal, abatement, encapsulation or disposal of

asbestos &/or toxic waste &/or lead of lead-based paint removal with be assigned to the members of the Laborers' International Union of North America not to be limited to the erection, moving, servicing & dismantling of all tools & equipment normally used in the handling, control. Removal or encapsulation of hazardous material. This agreement covers work tasks associated with any & all safety requirements & final cleanup & disposal of such hazardous material.

CLASS 3

MASON TENDERS

Mason Tenders- Mixing of Mortar, mortar pumps, caisson work, blast furnaces. Coke ovens and all related work. Erection and dismantling of all scaffolding, including tubular frame, manual and powered. Climbing scaffold, swing scaffolds, slings, bosun chairs and all associated safety protection including barricades, nets and ropes, scaffold weather enclosures; shoring; mortar buggies; concrete pumps; walk-behind forklifts; electric welders, torches, compressors, generators & the repair and maintenance of same; jackhammers, tampers, cut-off saws and other power equipment required for demolition, rotary-hammer drills, electric and pneumatic hand tools, transits, levels and lasers, tempering mortar; stocking scaffolds with masonry materials including brick, block, mortar, terra cotta, architectural pre-cast concrete, natural stone, insulation and mastic, flashing, anchors and ties, rebar, grout, Mobile lifting platform scaffolding powered by any power, mode or method; clean-up of all masonry debris.

CLASS 4

FORKLIFT LABORER

Operation of rough terrain forklifts & skid-steering loaders.

CLASS 5

MASON TENDER CRANE OPERATOR

Pioneer 9000 truck crane and self erecting portable tower crane similar to the POTAIN HDT 80

CLASS 6

PLASTERER AND DRYVIT TENDERS

1. Mixing of plaster and dryvit.
2. Plaster pumps.
3. Plaster tenders.
4. Scaffold Builders.
5. Mobile lifting platform scaffolding, by any power, mode or method.

Mixing of plaster and dryvit. Plaster pumps. Plaster tenders. Caisson work. Erection and dismantling of all scaffolding, including tubular frame, manual and powered climbing scaffold, swing scaffolds, slings, bosun chairs and all associated safety protection including barricades, nets and ropes, scaffold weather enclosures; shoring, mortar buggies; concrete pumps; walk-behind forklifts; electric welders, torches, compressors, generators & the repair and maintenance of same; jackhammers, tampers; cut-off saws and other power equipment requires for demolition; rotary-hammer drills, electric and pneumatic hand-tools; transits, levels and lasers, and the clean up of all plaster debris.

Notes for Building, Heavy, Highway Truckdriver

Truckdriver Class 1

Single Axle

Truckdrivers Class 2

Tandem
Tri-Axle
Semi-Trailer (Combination)

Truckdrivers Class 3

Speciality Vehicles

Notes for Electric Lineman

Updated September 19, 2018

Assembling, installation, erection, operation, maintenance, repair, control, inspections of all apparatus devices, wires, cables, supports, insulators, conductors, ducts, raceways, conduits including temporary, permanent, maintaining or restoring electrical service when part of outdoor lighting and wiring when fed from the street and controlled from the street.

All work consisting of wood poles, concrete or metal (or substitutes therefore) poles or towers, including wires, cables or other apparatus supported therefrom. Installing and maintaining the catenary and trolley work on railroad property and bonding of rails.

All outdoor substations, electrical connections and grounding including the setting of transformers and connecting the buses thereto, windmills and solar installations.

Installation and maintenance of roadway lighting and traffic signals systems electronic signs, and intelligent transportation systems.

Painters Notes for Building, Heavy, Highway Painters

Cameron, Crawford, Forest, Potter & Warren Counties

Painters Class 1 - Industrial Rates (Heavy/Highway)

Painters Class 2 - Commercial Rates (Building)

Allegheny, Fayette, Greene & Washington Counties

Painters Class 1 - Industrial Brush & Roll (Heavy/Highway)

Painters Class 2 - Industrial Sandblast & Spray (Heavy/Highway)

Painters Class 3 - Bridge, Hot Stack, & Transmission Towers (Heavy/Highway)

Painters Class 4 - Painter Tender I (Heavy/Highway)

Painters Class 5 - Painter Tender II (Heavy/Highway)

Painters Class 6 - Commercial Painting & Paperhanging (Building)

Armstrong, Beaver, Bedford, Blair, Butler, Cambria, Centre, Clarion, Clearfield, Elk, Fulton, Huntingdon, Indiana, Jefferson, Juniata, Lawrence, Mercer, Mifflin, Somerset, Venango & Westmoreland Counties

Painters Class 1 - Industrial Brush & Roll (Heavy/Highway)

Painters Class 2 - Industrial Sandblast & Spray (Heavy/Highway)

Painters Class 3 - Bridge, Hot Stack, & Transmission Towers (Heavy/Highway)

Painters Class 4 - Painter Tender I (Heavy/Highway)

Painters Class 5 - Painter Tender II (Heavy/Highway)

Painters Class 6 - Commercial Painting & Paperhanging (Building)

Bucks, Chester, Delaware, Montgomery & Philadelphia Counties

Painters Class 1 - Brush, Roller & Spray

Painters Class 2 - Bridge

Painters Class 3 - Wallcoverer

Adams, Berks, Bradford, Carbon, Clinton, Columbia, Cumberland, Dauphin, Franklin, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Monroe, Montour, Northampton, Northumberland, Perry, Pike, Schuylkill, Snyder, Sullivan, Susquehanna, Tioga, Union, Wayne, Wyoming & York Counties

Paitners Class 1 - Commercial*

Painters Class 2 - Industrial (includes Structural Steel, Industrial Spray & Sandblasting)*

Painters Class 3 - Bridge*

* $1.00per hour above the rate for all classifications for work done in the following manner: Steel, Spray, Epoxy, HIPAC Coatings, Catalyzed Epoxy, Urethanes, Removers, Swing, Basket, and Sandblasting

Clinton County

Painters Class 1 - Spray

Painters Class 2 - Brush & Roller

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 011100 - SUMMARY OF PROJECT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 PROJECT DESCRIPTION

A. Project Identification: New Holland Pike Low-Pressure Force Main Replacement Project
   1. Project location: New Holland Pike, Leola, PA 17540
   2. OWNER: Upper Leacock Township Municipal Authority

B. ENGINEER Identification: The Contract Documents, dated October 2026, were prepared for Project by:

   RETTEW Associates, Inc., 3020 Columbia Avenue, Lancaster, PA 17603

C. The project involves:
   1. Installation of approximately 11,350 LF low-pressure HDPE & PVC force main of varying diameters to replace an existing force main in critical condition. Work will include reconnection of approximately eleven (12) low-pressure sewer mains to the new force main, lateral reconnections, lateral valve replacements, demolition and rehabilitation of existing sewage facilities, and all associated valves and appurtenances for the complete installation of the low pressure force main.

1.3 CONTRACTS

A. Without intending to limit or restrict the extent of the Work required under any Contract, the Work for a particular Contract is summarized as follows.

B. CONTRACT NO. 2026-04
   1. Division 00-33 (Project Manual)
   2. Specifications denoted with “ALL CONTRACTS” or “CONTRACT NO. 2026-04”
   3. Drawings denoted with “ALL CONTRACTS” or discipline identifiers “G”, “X”, “C”, “A”, “B”, “S”, “D”, or “I”.

1.4 MISCELLANEOUS PROVISIONS

A. CONTRACTOR’S use of Premises:
   1. Coordinate use of premises with other contractors, OWNER, and ENGINEER.

2. CONTRACTOR shall assume full responsibility for security of all their and their subcontractors' materials and equipment stored on the site.
3. CONTRACTOR shall move any stored items that interfere with operations of others if directed by the OWNER or ENGINEER.
4. CONTRACTOR shall obtain and pay for use of additional storage or work areas if needed to perform the Work.

B. Sequence of Construction
1. Prior to commencing Work, the CONTRACTOR shall refer to Specification Section 011400 – Maintenance of Operation and submit a proposed sequence of construction to the ENGINEER for review and approval. The CONTRACTOR is responsible for overall coordination of all Work associated with this Project.

PART 2 - PRODUCTS
Not used.

PART 3 - EXECUTION
Not used.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 011400 – MAINTENANCE OF OPERATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. General provisions of the Contract Documents including General and Supplementary Conditions and Division 01 specifications sections apply to all work in this section.

1.2 COORDINATION OF WORK OF SEPARATE CONTRACTS

A. The General Construction Contractor is responsible for the overall coordination of the construction work of the Project. As specified in Section 013300, the General Construction Contractor shall prepare a Construction Progress Schedule in a form acceptable to the Engineer.

B. The Construction Progress Schedule shall then be reviewed at a joint meeting of the individuals Contractors, the Engineer and the Owner. At this meeting adjustments will be made to the Schedule that are agreeable for the timely completion of the Project. After revisions have been made the Schedule will be signed by the Contractor and issued to all parties.

C. The Engineer will monitor the progress of the Contractor and review the status of completion of their work at the regular project meetings. If the Contractor is delaying the progress of the Project, it shall be the responsibility of the Contractor to take necessary action to bring their portion of the Project back on schedule.

1.3 COORDINATION AND INTERFERENCES

A. The Engineer’s Drawings are generally diagrammatic and indicative of the work and as such cannot show actual construction conditions. Modifications in the work to compensate for minor interferences and structural obstructions shall be accomplished as part of the Work at no increase in Contract Price.

1.4 MAINTENANCE OF UTILITY OPERATIONS DURING CONSTRUCTION

A. Project Requirements:
   1. The existing sewer line services will be maintained in continuous operation during the entire construction period of the Contract as hereinafter specified, except for the short service shut downs required for lateral transitions as detailed in the Plan Drawings. The intent of this section is to outline the minimum requirements necessary to provide continuous service throughout the construction period.
   2. Work shall be scheduled and conducted by the Contractor so as not to impede any sewer service longer than necessary to transfer existing services from the existing main to the new main.
   3. All short-term system or partial systems shutdowns and diversions shall be approved by the Engineer and coordinated with the Owner.

4. The Contractor shall be responsible for coordinating the general construction schedule and for ensuring that permanent or temporary power is available for all existing, proposed, and temporary facilities that are required to be on line at any given time.
5. The Contractor has the option of providing additional temporary facilities that can eliminate a constraint, provided it is done without cost to the Owner and provided that all requirements of these Specifications are fulfilled. Work not specifically covered in the following paragraphs may, in general, be done at any time during the contract period, subject to the operating requirements and constraints and construction requirements outlined hereinafter. All references to days in this Section shall be consecutive calendar days.

B. General Operating and Construction Requirements:
1. Access to Site, Roadways, and Parking Areas: An unobstructed traffic route through the project area shall be maintained at all times for the residents of the community and Owner's operations personnel and maintenance equipment. Parking for personal vehicles of construction personnel shall be coordinated between the Contractor and Owner. The Contractor shall be responsible for providing access to and for preparing and maintaining/approved parking areas onsite. The Contractor shall each be responsible for furnishing additional off-site parking for their employees if required. The Contractor shall provide temporary measures to protect the existing pavement by filling over with earthen material or supplying other measures acceptable to the Engineer, and the Contractor shall repair any damage to existing paved surfaces that occurs during the construction period. Any areas disturbed along the shoulders of the road and interior roads and shall be repaired, graded, seeded, etc. as necessary to match pre-existing conditions.
2. Plumbing Facilities: Unless otherwise allowed by the Engineer, sanitary facilities in the existing structures around the project site shall be operational at all times. All other building plumbing systems such as roof and floor drains, pumping, etc., shall be maintained for all structures.
3. Potable Water System: Potable water service shall be maintained in continuous service at all times during construction. No interruption to potable water service is permitted. s

C. Overall Construction Sequence:
1. Staging Plan: To coordinate the completion of the work the General Contractor shall prepare a proposed staging plan for all demolition and construction on the project. Staging Plan shall be submitted for review by Engineer and Owner prior to the commencement of construction operations at these facilities.
2. To assist the Contractor in the preparation of a Staging Plan, the Engineer has outlined a general sequence of staging and specific guidelines in the Plan Drawings. This outline is for reference only and the requirements of staging, means and methods of demolition and construction, is the sole responsibility of the General Contractor.
3. General Sequence of Staging: Reference plan drawings for Engineer prepared construction sequence.

D. Emergency Force Main Break Response Plan:
1. Contractor shall submit an emergency break response plan specifically addressing the procedures and resources that will be utilized in the event of a break or failure of the existing New Holland Pike Low-Pressure Forcemain during construction. The submittal shall, at a minimum include the following:
    a. Procedures for immediately responding to, isolating, and controlling a break or failure of the existing forcemain.
    b. Equipment, materials, and personnel that will be maintained available for emergency response, including equipment and materials necessary for bypass pumping,

containment and collection of sewage, repair of the existing forcemain, and restoration of service.

c. Proposed means and methods for collecting and containing sewage that cannot be conveyed through the existing forcemain, including provisions to prevent the uncontrolled discharge of sewage to the ground, storm drainage systems, surface waters, or other unauthorized locations.

d. Procedures and equipment for the collection, pumping, hauling, transport, and disposal of sewage at an approved location. When necessary, contractor shall be solely responsible for coordinating and providing all equipment, vehicles, personnel, permits, approvals, and other requirements associated with such activities.

e. Procedures, materials, fittings, and equipment proposed for temporary and permanent repair of the existing forcemain and restoration of the existing system to service.

f. Staffing requirements during an emergency response. Contractor shall provide personnel continuously at the Site whenever temporary bypass pumping or other temporary sewage conveyance facilities are in operation, unless otherwise approved by Engineer.

g. Emergency contact information and lines of communication for Contractor personnel, emergency hauling services (if applicable), and other entities anticipated to be involved in an emergency response.

h. Review of the Plan by Engineer shall not relieve Contractor of responsibility for the adequacy of its means, methods, equipment, staffing, or procedures, or for maintaining sewer service and preventing unauthorized discharges.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Temporary pumps, temporary blowers, temporary bulkhead materials and temporary piping materials used to perform the work described previously under Construction Sequence, shall be of the Contractor’s choosing, but shall perform the work within the limits of the Contract requirements.

B. Project Sign: This project has received grant funding through the Commonwealth of Pennsylvania. Per requirements of the funding: Signs acknowledging the Commonwealth financial assistance or administrative participation will be erected in the project area as soon as possible after the effective date of the Contract. The sign will read as follows:

“This Project was financed in part by a grant from the Commonwealth of Pennsylvania Commonwealth Financing Authority”.

PART 3 – EXECUTION

3.1 PERFORMANCE

A. The means and methods of performing the operations described previously is the sole responsibility of the individual Contractors.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 012200 – MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Measurement and payment criteria applicable to the Work performed under a unit price payment method.

B. Non-conformance assessment and non-payment for rejected Work.

1.2 AUTHORITY

A. Measurement methods delineated in the individual specification section(s) are intended to complement the criteria of this section. In the event of conflict, the requirements of the individual specifications shall govern.

B. Take all measurements and compute quantities. The ENGINEER will verify measurements and quantities.

C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.3 QUANTITIES SPECIFIED

A. The General Construction Contracts will be performed on a unit price basis.

1.4 MEASUREMENT AND QUANTITIES

A. Measurement by Volume: measured by cubic dimension using mean length, width and height of thickness.

B. Measurement by Area: Measured by square dimension using mean length and width or radius.

C. Linear Measurement: Measured by horizontal linear dimension at the item centerline or mean chord, and on the basis of the horizontal in-place measurements of the constructed pipe lines, not including pipe through manholes.

D. Stipulated Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

1.5 PAYMENT

A. The unit prices in the bid form are intended to include all work described on the drawings and in the project manual. Compensation for any work described on the drawings or in the project

manual but not specifically listed as a payment item shall be included in one or more of the listed bid items. The total bid price shall include compensation for all work required by the drawings and project manual.

B. Payment includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, successful testing of piping and appurtenances, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

C. Payment for Permits and Inspections: Include the cost of all permits and inspections required to complete the Work covered under this Contract. No separate or extra payment will be made for permits, filing fees or inspections. All necessary permits shall be secured from Tyrone Borough, Blair County prior to any construction.

D. Sales and other Taxes: The CONTRACTOR shall take notice of, and shall be responsible for, any local or state taxes levied and applicable, and the costs for the same shall be included as part of this bid.

E. Unless otherwise specified in this section, payment for the bid items will be made as follows: 75% of unit price per foot upon installation of pipe, the remaining 15% upon testing and acceptance of the pipe, and 10% upon completion of restoration.

1.6 NON-CONFORMANCE ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements as directed by the ENGINEER.

B. If, in the opinion of the ENGINEER, it is not practical to remove and replace the Work, the ENGINEER will direct one of the following remedies:
   1. The defective Work may remain, but the unit price will be adjusted to a new price reduced 50% at the discretion of the ENGINEER.
   2. The defective Work will be partially repaired to the instructions of the ENGINEER, and the unit price will be reduced 30% at the discretion of the ENGINEER.

C. The individual specification sections may modify these options or may identify a specific formula or percentage price reduction.

D. The authority of the ENGINEER to assess the defect and identify payment adjustment is final.

1.7 NO-PAYMENT FOR NON-CONFORMING PRODUCTS

A. Payment will not be made for any of the following:
   1. Products wasted or disposed of in a manner that is not acceptable.
   2. Products determined as unacceptable before or after placement.
   3. Products not completely unloaded from the transporting vehicle.
   4. Products placed beyond the lines and levels of the required Work.
   5. Products remaining on-hand after completion of the Work.
   6. Loading, hauling and disposing of non-conforming products.
   7. Stored materials.

1.8 DESCRIPTION OF UNIT PRICES

A. CONTRACT NO. 2026-04 – GENERAL CONSTRUCTION

1. Item No. 1: Mobilization/Demobilization.
   a. Description: Include all costs involving equipment transportation, set up and removal for project sites throughout the course of the Project. Including but not limited to costs of bonding, insurance, submittal coordination, and contract closeout.
   b. Payment: Payment for this item will be made on a lump sum (LS) basis.
2. Item No. 2: Erosion and Sedimentation Controls (E&S).
   a. Description: Item is to include the costs to implement the Erosion and Sedimentation Control Plan throughout the Project area in accordance with the plans and specifications and any additional requirements stipulated by the Pennsylvania Department of Environmental Protection and the Lancaster County Conservation District. Costs shall include the furnishing, installation, maintenance, demolition and disposal, where applicable, of all E&S Controls, and any other requirements to fully implement the E&S Control Plan.
   b. Payment: Payment for this item will be made on a lump sum (LS) basis.
3. Item No. 3: Maintenance and Protection of Traffic.
   a. Include all costs to implement the required traffic control and maintenance procedures as indicated on the approved Highway Occupancy Permit (HOP) Plans and Details. Traffic control shall be in accordance with local and state requirements, regulations, and permits.
   b. Payment: Payment for this item will be made on a lump sum (LS) basis.
4. Item No. 4: Small Tree/Shrub Removal
   a. Description: This item includes the removal and disposal of individual trees and shrubs required for construction of the Work. A tree shall be eligible for measurement under this item only when the trunk is 3 inches or greater in diameter at breast height (DBH), measured approximately 4.5 feet above existing grade. A shrub shall be eligible for measurement under this item only when its canopy is 3 feet or greater in diameter at its widest point. Removal shall include cutting, grubbing and removal of stumps and roots where necessary, disposal of all resulting debris, and all labor and equipment necessary to complete the work. Removal of grass, weeds, brush, saplings, trees less than 3 inches DBH, shrubs less than 3 feet in diameter, and other incidental vegetation necessary to complete the Work shall be considered incidental to construction and will not be measured or paid for separately.
   b. Payment: Small Shrub and Tree Removal will be measured and paid for on a per each (EA) basis for each qualifying tree or shrub removed. Payment shall constitute full compensation for cutting, removal, grubbing where required, loading, hauling, disposal, and all labor, equipment, and incidental work necessary to complete the item.
5. Item No. 5: Demolition of Existing Valve Vaults/Manholes
   a. Description: This item includes complete demolition and removal of existing valve vaults and manholes designated for removal on the Drawings. Work shall include excavation; removal and disposal of the existing structure, frame and cover, valves, piping, fittings, supports, and all other associated components and appurtenances; cutting, capping, plugging, or otherwise terminating existing piping as required; dewatering; backfilling and compaction; and restoration of disturbed surfaces.
      1) All demolition materials and debris shall be removed from the site and legally disposed of by the Contractor. Backfill, compaction, and surface restoration shall be completed in accordance with the Contract Documents and the approved PennDOT Highway Occupancy Permit (HOP), where applicable.

2) The item shall include all labor, materials, equipment, excavation, dewatering, temporary support, backfill, compaction, hauling, disposal, surface restoration, and incidental work necessary to completely remove the existing valve vault or manhole and restore the disturbed area. Surface restoration in the State right of way must be completed in accordance with the Approved HOP Plans.

b. Payment: Payment for this item shall be measured and paid for on a per each (EA) basis for each existing valve vault or manhole completely removed and the disturbed area restored.

6. Item No. 6: HDPE Low-Pressure Sewer Line or Lateral (Open Cut)
   a. Description: includes actual number of linear feet of pipe installed, tested, and passed. Measurements for lengths shall be taken along the grade of the pipe and shall include the total length of the pipe installed from outside of valve pits, air releases, and cleanouts to the end of the low pressure sewer.
      1) Item shall include pipe, installation by open cut, pipe bedding, excavation, initial backfill, final backfill, tracer wire, warning tape, fittings, joint restraints, and all other labor and materials related to the installation of the pipe as identified in the Plan Drawings and Specifications. Contractor shall review Division 33 for requirements and/or limitations on pipe fusion, joints, and fittings.
      2) Final backfill type shall be selected according to the appropriate surface restoration class (improved vs unimproved). Improved areas shall receive full depth PennDOT 2A aggregate and Unimproved areas will require Class 2 backfill. Reference Section 312333 for trenching, backfilling, and compaction requirements. Additionally, reference and note requirements of the approved HOP plans appended to the project manual.
      3) Surface restoration is excluded from this pay item.
   b. Payment: Payment shall be made on a linear foot (LF) basis. No payment of this item shall be made until the sewer lines have been tested and passed in accordance with the Division 33 Specifications.
7. Item No. 7: PVC Low-Pressure Sewer Line (Open Cut)
   a. Description: includes actual number of linear feet of pipe installed, tested, and passed. Measurements for lengths shall be taken along the grade of the pipe and shall include the total length of the pipe installed from outside of valve pits, air releases, and cleanouts to the end of the low-pressure sewer.
      1) Item shall include pipe, installation by open cut, pipe bedding, excavation, initial backfill, final backfill, tracer wire, warning tape, fittings, joint restraints, and all other labor and materials related to the installation of the pipe as identified in the Plan Drawings and Specifications. Contractor shall review Division 33 for requirements and/or limitations on joints, and fittings.
      2) Final backfill type shall be selected according to the appropriate surface restoration class (improved vs unimproved). Improved areas shall receive full depth PennDOT 2A aggregate and Unimproved areas will require Class 2 backfill. Reference Section 312333 for trenching, backfilling, and compaction requirements. Additionally, reference and note requirements of the approved HOP plans appended to the project manual.
      3) Surface restoration is excluded from this pay item.
   b. Payment: Payment shall be made on a linear foot (LF) basis. No payment of this item shall be made until the sewer lines have been tested and passed in accordance with the Division 33 Specifications.
8. Item No. 8: PVC SDR-35 Gravity Sewer Line (0’-8’ Deep: Open Cut, Improved Area)

a. Description: Payment for sewer main pipes shall include pipes, bedding, initial, and final backfill and shall be based on the actual number of linear feet of pipe installed, tested, and passed. Measurement for lengths shall be taken along the grade line between the inside walls of the manholes and shall include the total length of pipe installed. No payment for this item shall be made until the sewer lines have been tested and passed in accordance with the requirement of the Project Manual. Payment shall be made only for completed runs.
   1) The limited extent of gravity sewer on this project is contained entirely within improved areas. Therefore, the price shall include full depth aggregate backfill. Surface restoration is excluded from this item.

b. Payment: Payment for this item shall be on a linear feet (LF) basis.

9. Item No. 9: 4’ Precast Sanitary Sewer Manhole
   a. Description: Item includes precast concrete manholes and shall be made on a vertical foot unit price basis. Measurement shall be from the lowest invert to the top of the frame, less the height of the frame. Item includes excavation backfill (either suitable or aggregate), stone subbase, various items to acceptably construct pre-cast manhole including concrete base, channel, sections, cone sections, grade ring, steps, joint sealing compound, installation, and testing. Item shall also include interior and exterior manhole linings as specified in Section 330513. Payment shall not be made until manhole is tested and passed and passed in accordance with the requirements of the Project Manual.
      1) Surface restoration is excluded from this item and will be paid for under the respective surface restoration items.
   b. Payment: Payment shall be made on a vertical foot (VF) basis as defined in 11a above.
10. Item No. 10: 4’ Doghouse Style Manhole
   a. Description: Item includes doghouse style sanitary sewer manhole and payment shall be made on a vertical foot unit price basis. Measurement shall be from the lowest invert to the top of the frame, less the height of the frame. Item includes excavation, backfill (either suitable or aggregate), stone subbase, cast-in-place concrete foundation, concrete support blocks, precast manhole sections, cone sections, grade rings, frame and cover, steps, joint sealing compound, and installation. Item shall also include supporting the existing sanitary sewer pipe during construction; cutting and removal of the upper portion of the existing sewer pipe within the manhole; forming the manhole invert to maintain flow through the existing sewer; filling and sealing the doghouse openings around the existing sewer pipe with non-shrink grout; waterstop material; and interior and exterior manhole linings as specified in Section 330513. Payment shall not be made until the completed doghouse manhole is visually inspected for leakage and watertightness. Visible leakage, defective joints, pipe penetrations, or other deficiencies shall be repaired to the satisfaction of the engineer prior to acceptance.
      1) Surface restoration is excluded from this item and will be paid for under the respective surface restoration items.
   b. Payment: Payment shall be made on a vertical foot (VF) basis as defined in 12a above.
11. Item No. 11: Standard Manhole Frame and Cover
   a. Description: Item includes furnishing, placement, and sealing of the frame and cover for a complete installation. Payment shall not be made until manhole is tested and passed in accordance with the requirements of the Project Manual.
   b. Payment: Payment shall be made on an each unit price basis for the actual number of manhole and frames furnished and installed.

12. Item No. 12: Plug Valve & Box
    a. Description: This item includes furnishment and installation of plug valves, complete in place, including mechanical joint restraints, valve box, cover, excavation & backfill, and all other items shown in the Contract Drawings and as specified in division 33 of the specifications. Surface restoration is excluded from this item and will be paid for under the corresponding surface restoration item respectively.
        1) Plug valves included in the ARV valve vault detail will not be paid for under this item and will be incidental to the ARV vault unit price item.
        2) This item will be used to pay for all plug valves along the mainline and at mainline interconnections.
    b. Payment: Payment shall be completed on an each (EA) basis
13. Item No. 13: Ball Valve & Box
    a. Description: This item includes furnishment and installation of ball valves, complete in place, including mechanical joint restraints, valve box, cover, excavation & backfill, and all other items shown in the Contract Drawings and as specified in division 33 of the specifications. Surface restoration is excluded from this item and will be paid for under the corresponding surface restoration item respectively.
        1) This item will be used to pay for all ball valves along the mainline and at mainline interconnections.
        2) Customer service lateral ball valves will be paid for under a separate line item.
        3) Ball valves contained within the ARV valve vaults will be incidental to the ARV line item.
    b. Payment: Payment shall be completed on an each (EA) basis
14. Item No. 14: Insertion Valve
    a. Description: This item includes furnishment and hot tap installation of insertion valves, complete in place, including mechanical joint restraints, valve box, cover, excavation & backfill, and all other items shown in the Contract Drawings and as specified in division 33 of the specifications. Surface restoration is excluded from this item and will be paid for under the corresponding surface restoration item respectively.
    b. Payment: Payment shall be completed on an each (EA) basis
15. Item No. 15: Combination Air Release Valve & Vault
    a. Description: Includes installation of a combination air/vacuum release valve assembly, including precast concrete vault, fittings, ball valves, plug valves, stainless steel piping, adapters and transition of pipe material, frame and covers, risers, and all other items as detailed in the Plan Drawings and Division 33 of the specifications. Excavation, backfill, stone subbase, connections to the incoming and leaving main line, interior and exterior coating, and all other items necessary for a complete in place air release valve assembly as shown in the Contract Drawings and as detailed in the Specifications is included in this item.
    b. Payment: Payment for this item shall be made on an Each (EA) basis. No payment shall be made for this item until installation is complete and the line has been tested.
16. Item No. 16: Mainline Interconnections
    a. Description: This item will be used to pay for all materials and labor necessary to complete the interconnections with incoming low pressure sewer mains. The connections intended to be covered under this item are indicated on Index Sheet G-03, and further detailed with enlarged scale plans on corresponding Plan/Profile drawings.
        1) Valves are excluded from this item, and will be paid for under corresponding valve and valve box items.

2) Forcemain is excluded from this item and will be paid for under corresponding low pressure sewer line items.
3) Excavation and backfill will be incidental to the force main and will not be paid separately under this item.
4) Surface restoration will be paid for under the corresponding surface restoration items.
5) This item is intended to pay for additional materials, fittings, tapping sleeves, excavation area, construction sequencing, labor, and flow maintenance activities, required for installation of the sewer line and that are necessary to complete the mainline interconnections. Contractor should review the recommended sequence of construction and enlarged scale connection details provided in the Plan Drawings.
6) Payment for this item will not be made until successful connection of the incoming forcemains to the proposed sewer is made. Connections should be tested and visually inspected, and deficiencies shall be corrected prior to payment.

b. Payment: Payment for this item will be made on an each (EA) unit price basis for each tested, inspected, and successful mainline interconnection along the proposed forcemain.

17. Item No. 17: Dart Interconnection & South Maple Vault Rehab
    a. Description: This item will be used to pay for the vault rehabilitation, disconnection and connection of the 4" & 6" forcemains, and all other efforts required to rehabilitate the existing valve vault and to redirect the Dart Container flows to the newly installed 6" forcemain along South Maple Avenue. Reference Sheet C-17
        1) Item will include coordination with the Owner and efforts necessary for maintenance of customer flows during the interconnections.
        2) Item will include pipe, fittings, excavation, backfill, and surface restoration necessary for rehabilitation/modification of the vault, and connection of the 4" main to the proposed 6" main.
        3) The 6" forcemain along South Maple Avenue will be paid for separately.
        4) The Interconnection between the 6" forcemain and the 12" forcemain along New Holland Pike will be paid for under mainline interconnections.
    b. Payment: Payment for this item will be made as lump sum (LS).
18. Item No. 18: Lateral Reconnection (Short Side)
    a. Description: This item will be used to pay for customer lateral reconnections on the same side of the road as the proposed forcemain. Item includes but is not limited to valve, valve box, cutting and capping existing laterals, demolition of existing customer valve and valve box, connection to the new main as detailed in the Plan Drawings. Item includes saddles, pack joints, and all other fittings necessary to make the transition between the existing and proposed main. Contractor to reference the short side lateral connection detail in the Plan Drawings.
    b. Payment: Payment will be made on an each (EA) unit price basis for each successful customer transition made to the new forcemain. Payment will not be made until successful customer transition is made in accordance with the Project Manual.
19. Item No. 19: Lateral Reconnection (Long Side)
    a. Description: This item will be used to pay for customer lateral reconnections on the opposite side of the road as the proposed forcemain. Item includes but is not limited to valve, valve box, cutting and capping existing laterals, demolition of existing customer valve and valve box, connection to the new main as detailed in the Plan Drawings. Item includes saddles, pack joints, line stops, and all other fittings

necessary to make the transition between the existing and proposed main. Contractor to reference the long side lateral connection detail in the Plan Drawings.

b. Payment: Payment will be made on an each (EA) unit price basis for each successful customer transition made to the new forcemain. Payment will not be made until successful customer transition is made in accordance with the Project Manual.

20. Item No. 20: Unclassified Excavation
    a. Description: It is intended for additional unclassified excavation, when directed by the Engineer. This item is intended to pay for excavations made, but not used through no fault of the Contractor. It shall include the cost of excavating, disposal, and backfilling with required materials as defined in Section 02221.
    b. Payment: Payment will be made on a cubic yard (CY) basis.
21. Item No. 21: Unmarked Utility Repair
    a. Description: This item includes all labor, materials, equipment, and incidentals necessary to repair existing unmarked utilities damaged during construction when, in the opinion of the Engineer, the location of the utility could not have been reasonably identified by the Contractor prior to or during the Work. Repairs to utilities damaged as a result of Contractor negligence, failure to exercise reasonable care, or failure to comply with applicable utility locating requirements shall be made at the Contractor's expense and shall not be eligible for payment under this item.
    b. Payment: Payment shall be made on an each (EA) unit price basis for the corresponding utility type on the bid form. Payment for this item will not be made until the broken utility is repaired in accordance with the utility owners standards, and the repair is approved by the utility owner.
22. Item No. 22: Line Stops/Mech Plugs (Additional)
    a. Description: This item is intended to pay for additional line stops or mechanical plugs necessary for mainline interconnections and/or service lateral transitions that are not already incidental to those pay items.
    b. Payment: Payment will be made on an each (EA) unit price basis. Payment will not be made for this item if it is deemed by the Engineer that the use of additional line stops or mechanical plugs is unnecessary to complete the work. The use of additional line stop provisions should be cleared with the Engineer prior to installation.
23. Item No. 23: Unimproved Surface - Lawns/Field
    a. Description: This item will be used for surface restoration in unimproved areas. Restoration shall be completed as detailed in the trench restoration details included in the plan drawings.
    b. Payment: Payment shall be made for this item on a linear foot (LF) basis along centerline of the pipeline and shall include all applicable items of work for unimproved surface restoration in accordance with the Plan Details and Project Specifications.
24. Item No. 24: Improved Surface – Gravel
    a. Description: This item will be used for surface restoration in improved gravel areas including but not limited to residential driveways and gravel shoulders. Restoration shall be completed as detailed in the trench restoration details included in the plan drawings.
    b. Payment: Payment shall be made for this item on a linear foot (LF) basis along centerline of the pipeline and shall include all applicable items of work for unimproved surface restoration in accordance with the Plan Details and Project Specifications.
25. Item No. 25: Improved Surface – Asphalt Driveway

a. Description: This item will be used for surface restoration in improved asphalt driveway areas including but not limited to residential driveways and parking lots. Restoration shall be completed as detailed in the plan drawings.
b. Payment: Payment shall be made for this item on a linear foot (LF) basis along centerline of the pipeline and shall include all applicable items of work for improved asphalt surface restoration in accordance with the Plan Details and Project Specifications. Contractor should reference the approved HOP plans appended to the Project Manual to determine any additional requirements for restoration in the PennDOT ROW.

26. Item No. 26: Improved Surface – Municipal Road
    a. Description: this item will be used for surface restoration in improved municipal roadways, and shall include all labor and materials necessary for municipal road restoration as defined in the Plan Drawings and Project Manual.
    b. Payment: Payment shall be made for this item on a linear foot (LF) basis along centerline of the pipeline and shall include all applicable items of work for improved municipal road surface restoration in accordance with the Plan Details and Project Specifications.
27. Item No. 27: Improved Surface – Concrete Sidewalk
    a. Description: this item will be used for surface restoration in improved sidewalk areas and shall include all labor and materials necessary for concrete sidewalk restoration as defined in the Plan Drawings and Project Manual.
    b. Payment: Payment shall be made for this item on a linear foot (LF) basis along centerline of the pipeline. Payment will not be made for this item until any deficiencies identified by the engineer are corrected.
28. Item No. 28: Improved Surface – Full Depth State Road Restoration
    a. Description: this item will be used for surface restoration in improved state road areas and shall include all labor and materials necessary for restoration as defined in the approved Highway Occupancy Plan (HOP) Drawings, appended to this Project Manual.
    b. Payment: Payment shall be made for this item on a linear foot (LF) basis along centerline of the pipeline. Payment for this item will not be made until the restoration work is completed and in compliance with the HOP Drawings and Project Manual.
29. Item No. 29: Improved Surface – Temporary Road Restoration (State & Municipal Road)
    a. Description: This item shall include temporary paving prior to permanent road restoration for municipal and state roads. Refer to the approved HOP Plans for temporary paving detail. This shall include all areas shown on the drawings located within the road that will be disturbed by the construction. This shall not be used for areas damaged as a result of Contractor activities outside of those areas.
    b. Payment: Payment for this item will be made on a linear foot (LF) basis along centerline of the pipeline. Payment for this item will not be made until the temporary paving is completed and in compliance with the HOP Drawings, Plan Drawings, and Project Manual.
30. Item No. 30: Improved Surface – Concrete Curb
    a. Description: This item shall include the all labor, materials, formwork, and any other items necessary for the replacement of existing concrete curb impacted during construction. Concrete curb shall be installed according to the details provided in the Plan Drawings and Project Specifications.
    b. Payment: Payment will be made on a linear foot (LF) unit price basis. Payment for curb will only be made in areas where curb removal is necessary to install the sewer line. This item will not be paid for damaged curb replacement due to contractor negligence.

PART 2 - PRODUCTS
Not used.

PART 3 - EXECUTION
Not used.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and other Division 01 specification sections, apply to this section. This section includes:
   1. Submittal procedures.
   2. Proposed products list.
   3. Construction progress schedules.
   4. Schedule of value.
   5. Shop drawings.
   6. Product data.
   7. Samples.
   8. Field samples.
   9. Manufacturers' instructions.
   10. Manufacturers' certificates.
   11. Photographic documentation

B. The term submittal used throughout this section includes shop drawings, samples, manufacturer's product data in the forms of descriptive literature, specifications, and published detail drawings, photographic documentation (photos/videos) and also CONTRACTOR prepared drawings, certified test reports or reports and such other certificates required by the Contract Documents.

1.2 SUBMITTAL PROCEDURES

A. Within two (2) weeks after the award of Contract, submit a progress schedule of submittals to the ENGINEER for review and acceptance indicating the proposed dates of submission and the number for the various types of Work. Arrange submission dates in the proper sequence of the importance of the Work to the progress of construction. Prepare and transmit each submittal sufficiently in advance of performing the related Work or other applicable activities, or within the time specified in the individual Work of other related sections, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the CONTRACTOR's failure to transmit submittals sufficiently in advance of the Work.

B. Deliver submittals to ENGINEER at address listed in Invitation to Bidders.

C. Transmit each item under ENGINEER-accepted forms. Each transmittal shall be numbered in sequence. Resubmittals are to have original number with an alphabetic suffix (example 1A). Identify Project, CONTRACTOR, subcontractor, major supplier; identify pertinent drawing sheet

and detail number(s). Identify deviations from Contract Documents. Provide space for CONTRACTOR and ENGINEER review stamps.

D. Apply CONTRACTOR's approval stamp, signed, or initialed certifying that review, verification of products required, field dimensions adjacent to construction work, and coordination of information is in accordance with the requirements of the Work and Contract Documents. Shop drawings which do not contain the above listed requirement as well as a CONTRACTOR's approval stamp and original signature will not be reviewed by the ENGINEER and will be returned to the CONTRACTOR.

E. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed Work. Unidentified variations without technical justifications will be rejected.

F. Shop drawings, product data and samples shall only be submitted by the CONTRACTOR. They will not be submitted by subcontractors or suppliers.

G. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.

H. The CONTRACTOR will include five (5) copies of all documents in each submission.

I. After ENGINEER review of submittal, revise and resubmit as required; identify changes made since previous submittal.

J. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

K. Provide Manufacturer's Safety Data Sheets (MSDS) for all products and materials.

L. Faxes will not be accepted as shop drawing submittals.

1.3 ELECTRONIC SUBMITTALS

A. Identify and incorporate information in each electronic submittal file as follows:
   1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
   2. Name file with submittal number or other unique identifier, including revision identifier.
      a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
   3. Provide means for insertion to permanently record CONTRACTOR's review and approval markings and action taken by ENGINEER.
   4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to OWNER**,** containing the following information:
      a. Project name.
      b. Date.
      c. Name and address of ENGINEER.

d. Name of CONTRACTOR.
e. Name of firm or entity that prepared submittal.
f. Names of subcontractor, manufacturer, and supplier.
g. Category and type of submittal.
h. Submittal purpose and description.
i. Specification Section number and title.
j. Specification paragraph number or drawing designation and generic name for each of multiple items.
k. Drawing number and detail references, as appropriate.
l. Location(s) where product is to be installed, as appropriate.
m. Related physical samples submitted directly.
n. Indication of full or partial submittal.
o. Transmittal number [, numbered consecutively].
p. Submittal and transmittal distribution record.
q. Other necessary identification.
r. Remarks.

1.4 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial progress schedules and schedule of values in duplicate within fifteen (15) days after date established in notice to proceed. After review by ENGINEER, revise and resubmit as required. Submit revised schedules with each application for payment, reflecting changes since previous submittal.

B. Show projected percentage of completion for each item of Work as of time of each Application for Progress Payment.

C. Show submittal dates required for shop drawings, product data and samples, and product delivery dates.

1.5 SCHEDULE OF VALUE

A. Submit typed Schedule on 8-inch by 11-inch paper; CONTRACTOR’s standard form or media-driven printout will be considered upon request within 21 days after the effective date of the Agreement.

B. Format: The Table of Contents of this document. Identify each line item with number and title of the major specification sections.

C. For unit cost allowances, give quantities measured from Contract Documents multiplied by the unit cost equal to the total for each item.

D. Include in each line item a directly proportional amount of CONTRACTOR’s overhead and profit.

E. Revise schedule to list change orders for each application of payment.

1.6 PROPOSED PRODUCTS LIST

A. Within fifteen (15) days after date of notice to proceed, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

C. Product data includes standard printed information on manufactured products that has not been specially prepared for this Project, including but not limited to the following:
   1. Product specifications and installation instructions.
   2. Standard color charts.
   3. Catalog cuts.

1.7 SHOP DRAWINGS

A. When required, one (digital or at least five (5) hard copies of the shop drawings shall be submitted by the CONTRACTOR with such promptness as to avoid delay in the Work. All shop drawings shall be identified with the name of the CONTRACTOR, and numbered in consecutive order. If hard copies are provided, four (4) copies of all shop drawings shall be retained by the ENGNIEER. Two (2) additional copies shall be retained by the OWNER.

B. The OWNER will pay for the ENGINEER’s review of up to two (2) submittals of each shop drawing. The costs for review of all subsequent submittals of a particular shop drawing shall be borne by the CONTRACTOR, and shall be deducted from the CONTRACTOR’s applications for payment.

C. Shop drawings are technical drawings and data that have been specially prepared for this Project, including but not limited to the following:
   1. Fabrication and installation drawings.
   2. Setting diagrams.
   3. Shopwork manufacturing instructions.
   4. Schedules.
   5. CONTRACTOR’s engineering calculations.
   6. Shop, setting, fabrication, equipment and/or layout drawings of all structural, piping, equipment and other component materials and facilities proposed to be furnished under this Contract shall be submitted. Said drawings shall show all pertinent dimensions, details, materials of construction, schematic representations, supports, construction methods, field construction criteria, relationship with other adjacent or integral proposed and/or existing facilities, and such other data as required to demonstrate compatibility with the basic design concepts set forth in the Contract Documents. Said drawings may be the product of either the CONTRACTOR, a subcontractor, or a supplier, but, in any event, the CONTRACTOR shall be held responsible for the accuracy and completeness of same and for conformity with the provisions of the plans and specifications. All shop drawings will be to scale.

1.8 PRODUCT DATA

A. Submit the number of copies specified in individual specification sections; if hard copies, four (4) of which will be retained by the ENGINEER and two (2) by the OWNER.

B. Mark each copy to identify applicable products, models, options, and other data; supplement manufacturers' standard data to provide information unique to this Project.

1.9 SAMPLES

A. Submit full range of manufacturers' standard colors, textures, and patterns for OWNER/ENGINEER's selection. Allow four (4) weeks for selection of finishes from time of submission.

B. Submit samples of finishes from the full range of manufacturer's standard colors, textures, and patterns for ENGINEER's selection.

C. Submit samples to illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.

D. Include identification on each sample with full Project information.

E. Submit the number or samples specified in respective specification section; four (4) will be retained by the ENGINEER and two (2) by the OWNER. Review samples that may be used in the Work are indicated in the specification section.

1.10 FIELD SAMPLES

A. Provide field samples of finishes at Project as required by individual specification sections. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

1.11 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for product data.

B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.12 MANUFACTURER'S CERTIFICATES

A. Submit manufacturers' certificate to ENGINEER for review in quantities specified for product data. Utilize the specified equipment warranty and certification form.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or product but must be acceptable to the ENGINEER.

1.13 PHOTOGRAPHIC DOCUMENTATION

A. Section includes administrative and procedural requirements for the following:
   1. Preconstruction photographs.
   2. Periodic construction photographs.
   3. Final completion construction photographs.

1.14 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of eight (8) megapixels, and at an image resolution of not less than [3200 by 2400] pixels.

B. Digital Video Recordings: Provide high-resolution, digital video disc in format acceptable to ENGINEER.

PART 3 - EXECUTION

3.1 GENERAL

A. When making a submission for review and acceptance, the CONTRACTOR shall do so with the understanding that he is considered to have checked the items in the shop drawing before submitting them and that he is satisfied that, in their present state, they not only meet the requirements of the Contract Documents, but will present no difficulties in erection and completing his Contract, and shall clearly note his approval on all shop drawings prior to their submission to the ENGINEER. Failure of the CONTRACTOR to note his approval will be reason for the ENGINEER to return such submission to the CONTRACTOR unchecked.

B. The review of shop drawings, product data, etc. will be general and shall not relieve the CONTRACTOR from the responsibility for proper fitting and construction of the Work nor from furnishing materials and Work required by the Contract which may not be indicated on the shop drawings when reviewed.

C. At the time of each submission, the CONTRACTOR will, in writing, call the ENGINEER’s attention to any deviations that the shop drawing, certification, or sample may have from the requirements of the Contract Documents.

D. The ENGINEER will timely review the submittals and return them to the CONTRACTOR in accordance with Paragraph 6.17.D, provided that the schedule has been received and accepted, but his review and acceptance shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The review of a separate item as such will not indicate acceptance of the assembly in which the item functions.

E. No Work requiring a shop drawing, product data certification, or sample submission shall be commenced until the submission has been reviewed and accepted by the ENGINEER. A copy of each shop drawing certification and each sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

F. The ENGINEER’s review of shop drawings, product data certifications, or samples shall not relieve the CONTRACTOR from his responsibility for any deviations from the requirements of the Contract Documents unless the CONTRACTOR has, in writing, called the ENGINEER’s attention to such deviation at the time of submission and the ENGINEER has given written acceptance to the specific deviation, nor shall any acceptance by the ENGINEER relieve the CONTRACTOR from responsibility for errors or omissions in the shop drawings.

G. The CONTRACTOR shall note that the ENGINEER has not given acceptance to any item of equipment or material prior to submission of shop drawings, certifications, or samples. This applies both to specified and alternate items. Therefore, use of specified items does not remove the necessity to submit for acceptance. The ENGINEER will not give oral or written acceptance to any equipment supplier, materialman, manufacturer's representative or vendor. The ENGINEER will not review or consider any submission prior to the issuing of a notice to proceed and will not consider or review any submission made directly by an equipment supplier, materialman, manufacturer's representative or vendor. Any such submittal will be forwarded to the CONTRACTOR without comment.

H. Where information is submitted which covers a number of variations to the general class of equipment, each such item shall be individually endorsed to describe exactly which parts apply to the equipment being furnished. Such endorsement shall also include the Project name, Contract number, and serial number of the particular item covered. Separate sheets of paper bearing this endorsement will not be acceptable unless pasted individually on the rear of each print submitted.

I. At the same time of each submission, the CONTRACTOR shall, in writing, note any deviations that the shop drawing, product data, or sample may have from the requirements of the drawings and specifications. This written notice shall accompany the submission and shall be attached thereto. If it is necessary to convey these deviations on drawings, the information shall appear on the drawing and within the written notice. Acceptance of drawings and data which contain items which deviate from the drawings and specifications, without such written notice, will not constitute acceptance of substitute items. Drawings which are submitted without such written notice will be returned to the CONTRACTOR unmarked if the deviation is detected in the review by the ENGINEER. Acceptance of any equipment item will be withdrawn if such deviations are detected after installation and prior to release of the CONTRACTOR from his contractual obligations, regardless of whether or not drawings covering the equipment item were approved.

J. Once the CONTRACTOR issues a shop drawing, product data or samples for review by the ENGINEER, the CONTRACTOR assumes responsibility for all changes to other trades necessitated by his selection.

K. If in the opinion of the ENGINEER any information is insufficient for proper review, the ENGINEER may elect to request additional information prior to the review of an item.

L. The purpose of having drawings, product data and samples checked and accepted by the ENGINEER is twofold:
1. To assure compliance with the purpose and intent of the specifications.
2. To assist the CONTRACTOR in interpreting the specifications so as to eliminate mistakes in the design or manufacture of equipment actually shipped to the OWNER.

M. The formal acceptance given to the CONTRACTOR is to be considered as in conformance with these purposes and in no manner shall be construed so as to relieve the CONTRACTOR from any liability or responsibility for proper design, fabrication or compliance with the specifications.

N. It is to be understood by the CONTRACTOR that final distribution copies of a previously accepted drawing are not rechecked. It is also to be understood that only those portions requiring change on "Furnish As Corrected" and "Revise And Resubmit" drawings will be rechecked. It is the responsibility of the CONTRACTOR to ensure that any changes made on resubmitted drawings are clearly indicated as a revision to the drawing and called to the ENGINEER’s attention in the transmittal letter.

O. Shop Drawing Action Stamp (Also used for product data).
1. The ENGINEER’s drawing action stamp will appear on all the CONTRACTOR's drawings returned to him by the ENGINEER. Stamp will indicate acceptance status on each drawing.
2. Acceptance status designation on action stamp is defined as follows:
3. Legends:
    a. Reviewed:
        1) Denotes no exception taken but does not act as a guaranty or warranty of CONTRACTOR's design or as a warranty or guaranty of any type on the part of the ENGINEER. The intent is that the CONTRACTOR proceed with all Work shown on the drawing with no exceptions.
    b. Revise and Resubmit:
        1) Denotes that drawing does apply to item specified but shows insufficient detail or has too many errors and omissions. The intent is that the CONTRACTOR should not start fabrication or construction. ENGINEER has marked corrections on drawings.
    c. Rejected:
        1) Denotes that drawing is not according to form specified. Either drawing does not apply to item as specified or item shown was not specified. Drawing is poorly prepared and difficult to interpret. The intent is that the CONTRACTOR will submit a new drawing. ENGINEER does not make corrections on drawing but does tell CONTRACTOR why drawing was "not accepted".
    d. Repeated Submissions:
        1) CONTRACTOR shall respond to required submittals with complete and accurate information in order to limit submissions to one (1) initial submission and two (2) repeat submissions. Should submissions exceed the three (3) referred to above, beginning with the fourth submission review, the costs to the OWNER involved with such additional submission will be backcharged to the CONTRACTOR by deducting such costs from payment due.

2) In the event the CONTRACTOR requests a substitution for a previously approved item, the costs involved for the reviewing and approval process will also be backcharged to the CONTRACTOR.

3.2 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
1. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. Date and Time: Include date and time in file name for each image.
2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to ENGINEER.

D. Preconstruction Photographs: Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by ENGINEER.
1. Flag construction limits before taking construction photographs.
2. Take twenty (20) photographs to show existing conditions adjacent to property before starting the Work.
3. Take twenty (20) photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

E. Periodic Construction Photographs: Take twenty (20) photographs monthly coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

F. Final Completion Construction Photographs: Take twenty (20) color photographs after date of Substantial Completion for submission as project record documents. ENGINEER will inform photographer of desired vantage points.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 014000 - QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
   1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
   2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
   3. Requirements for Contractor to provide quality-assurance and -control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
   1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Engineer for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.6 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.

10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
   1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
   1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
   2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.8 QUALITY CONTROL

A. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
   1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
   2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
      a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
   3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
   4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
   5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
   6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

C. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Engineer and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
   1. Access to the Work.
   2. Incidental labor and facilities necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.9 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
1. Submitting a certified written report of each test, inspection, and similar quality-control service to Engineer with copy to Contractor and to authorities having jurisdiction.
2. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if

bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION
Not Used.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 016100 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
   2. Engineer's Action: If necessary, Engineer will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Engineer will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
      a. Form of Approval: As specified in Division 01, Section 013300
      b. Use product specified if Engineer does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section 013300. Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
   1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
   2. If a dispute arises between contractors over concurrently selectable but incompatible products, Engineer will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:
   1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
   2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
   3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
   4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:
   1. Store products to allow for inspection and measurement of quantity or counting of units.
   2. Store materials in a manner that will not endanger Project structure.
   3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
   4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
   5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
   6. Protect stored products from damage and liquids from freezing.
   7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
   1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
   2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
   1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
   2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
   3. See Divisions 02 through 46 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section 017700

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
   2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Engineer will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:
1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:
   a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
4. Manufacturers:
   a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Engineer's sample", provide a product that complies with requirements and matches Engineer's sample. Engineer's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Engineer from manufacturer's full range" or similar phrase, select a product that complies with requirements. Engineer will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Engineer will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied,

Engineer may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of Engineers and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION

Not Used.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 017123 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Related Sections:
   1. Section 011100 - Summary of Work
   2. Section 017700 – Closeout Procedures

1.2 DESCRIPTION OF WORK

A. Provide and pay for field engineering services required for the Project.
   1. Survey work required in execution of Project.
   2. Civil, structural or other professional engineering services specified, or required to execute CONTRACTOR'S construction methods.

B. Retain the services of a registered land surveyor licensed in the Commonwealth of Pennsylvania:
   1. Identify existing control points and property line corner stakes indicated on the drawings, as required.
   2. Verify all existing structure locations and all proposed building corner locations, tank locations and equipment locations.
   3. Maintain an accurate location of all buried piping.

C. With agreement of OWNER, CONTRACTOR may retain RETTEW Associates, Inc. to perform field survey, stake-out and other construction survey functions.

1.3 QUALITY ASSURANCE

A. Registered professional engineer or land surveyor of the discipline required for the specific service on the Project, currently licensed in the Commonwealth of Pennsylvania.

B. Referenced standards shall be the following:
   1. None.

1.4 SUBMITTALS

A. Submit name, address, and telephone number of licensed surveyor before starting survey work.

B. On request, submit documentation verifying accuracy of field engineering work.

C. Submit certificate signed by licensed surveyor certifying that elevations and locations of improvements are in conformance, or nonconformance, with Contract Documents.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain a complete and accurate log of control and survey work as it progresses.

B. Submit record documents under provisions of Section 017700.

1.6 EXAMINATION

A. Verify locations of survey control points prior to starting work.

B. Promptly notify ENGINEER of any discrepancies discovered.

1.7 SURVEY REFERENCE POINTS

A. OWNER to locate and CONTRACTOR to protect survey control and reference points.
   1. Make no changes or relocations without prior written notice to the ENGINEER.
   2. Report to the ENGINEER when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
   3. Require surveyor to correctly replace Project control points that may be lost or destroyed.
      a. Establish replacements based on original survey control.

B. Control datum for survey is that established by OWNER and indicated on drawings.

1.8 SURVEY REQUIREMENTS

A. Establish lines and levels, locate and lay out the following by instrumentation and similar appropriate means:
   1. Establish all lines and grades prior to construction of line work for water mains and associated at 100-foot increments and at defined breaks in grade.

PART 2 - MATERIALS

Not used.

PART 3 - CONSTRUCTION

Not used.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 017300 – EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
   1. Construction layout.
   2. Field engineering and surveying.
   3. Installation of the Work.
   4. Coordination of Owner-installed products.
   5. Progress cleaning.
   6. Starting and adjusting.
   7. Protection of installed construction.
   8. Correction of the Work.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Engineer. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the existing benchmarks. If discrepancies are discovered, notify Engineer promptly.

B. General: Lay out the Work using accepted surveying practices.
1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.

C. Record Log: Maintain a log of layout control work. Insert special requirements for laying out the Work to suit Project.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction forces.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
   1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
   2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials

specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
   1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section 014000.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. This section specifies administrative and procedural requirements for Project closeout, including but not limited to:
   1. Closeout procedures
   2. Final cleaning.
   3. Adjusting.
   4. Project record documents.
   5. Spare parts and maintenance materials.
   6. Repair of the Work.

1.3 CLOSEOUT PROCEDURES

A. Comply with procedures stated in the general conditions of the Contract for issuance of the Certificate of Substantial Completion.

B. When CONTRACTOR considers work has reached final completion, submit written certification that contract documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for ENGINEER's inspection.

C. In addition to submittals required by the conditions of the Contract, provide submittals required by governing authorities, and submit a Final Application for Payment and statement of accounting giving total adjusted Contract sum, previous payments, and total remaining due.

D. ENGINEER will issue a final change order reflecting approved adjustments to the Contract total not previously made by a change order.

1.4 FINAL CLEANING

A. Execute prior to final inspection.

B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; and vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment.

Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps. Clean roofs, gutters, downspouts, and drainage systems.

C. Clean site; sweep paved areas, rake clean other surfaces.

D. Remove waste and surplus materials, rubbish, and construction facilities from the project and from the site.

E. Remove all construction debris from tanks, manholes, pits, etc. Do not allow debris to be washed into treatment process or stream.

1.5 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
   1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
   2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
      a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
   3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
   4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

1.6 PROJECT RECORD DOCUMENTS

A. See Section 017839

1.7 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

1.8 OPERATION AND MAINTENANCE MANUALS

A. Submit one digital set prior to final inspection. Operation and maintenance data shall have been previously approve by the ENGINEER as part of the acceptance of the equipment.

B. Provide a separate volume for each system, with a table of contents and index tabs for each volume.

C. For each system, give names, addresses, and telephone numbers of suppliers and service representatives. Include the following unless otherwise instructed in the specifications:
1. Appropriate design criteria;
2. List of equipment;
3. Parts list;
4. Operating instructions;
5. Emergency instruction and procedures
6. Maintenance procedures, equipment
7. Maintenance instructions, finishes;
8. Shop drawings and product data; and
9. Warranties.

1.9 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by CONTRACTOR that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
   a. Project name.
   b. Date.
   c. Name of ENGINEER.
   d. Name of CONTRACTOR.
   e. Page number.
4. Submit list of incomplete items in the following format:
   a. MS Excel electronic file. ENGINEER will return annotated file.

1.10 INSTRUCTION OF OWNER PERSONNEL

A. Before final inspection, instruct OWNER’s designated personnel in operation, adjustment and maintenance of products, equipment and systems, at agreed upon times.

B. For equipment requiring seasonal operation, perform instructions for other seasons within six (6) months.

C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

D. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.11 WARRANTIES AND BONDS

A. Provide duplicate, notarized copies. Execute CONTRACTOR's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.

B. Submit material prior to Final Application for Payment. For equipment put into use with OWNER's permission during construction, submit within ten (10) days after first operation. For items of work delayed materially beyond the Date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as the start of the warranty period.

1.12 WARRANTY REQUIREMENT

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The CONTRACTOR is responsible for the cost of replacing or rebuilding defective Work regardless of whether the OWNER has benefited from use of the Work through a portion of its anticipated useful service life.

D. OWNER’s Recourse: Written warranties made to the OWNER are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the OWNER can enforce such other duties, obligations, rights, or remedies.

E. Rejection of Warranties: The OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

F. The OWNER reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

G. Disclaimers and Limitations: Manufacturer’s disclaimers and limitations on product warranties do not relieve the CONTRACTOR of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers and subcontractors required to countersign special warranties with the CONTRACTOR.

H. Separate Prime Contracts: Each Prime CONTRACTOR is responsible for warranties related to its own Contract.

1.13 DEFINITIONS

A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the OWNER.

B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the OWNER.

1.14 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, and maintenance materials in quantities specified in each section, in addition to that used for construction of work. Coordinate with OWNER, deliver to project site, and obtain receipt prior to final payment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
   1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

Not Used.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:
   1. Record Drawings.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:
   1. Number of Copies: Submit *one set* of marked-up record prints.
   2. Number of Copies: Submit copies of record Drawings as follows:
      a. Initial Submittal:
         1) Submit *one* paper-copy set of marked-up record prints.
         2) Submit PDF electronic files of scanned record prints and one of file prints.
         3) Submit record digital data files and one set(s) of plots.
         4) Engineer will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
      b. Final Submittal:
         1) Submit *three* paper-copy set(s) of marked-up record prints.
         2) Submit PDF electronic files of scanned record prints and *three* set(s) of prints.
         3) Print each drawing, whether or not changes and additional information were recorded.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
   1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding archive photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:
a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations below first floor.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Work Change Directive.
k. Changes made following Engineer's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Engineer. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
2. Format: DWG, Version, Microsoft Windows operating system.
3. Format: Annotated PDF electronic file with comment function enabled.
4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
5. Refer instances of uncertainty to Engineer for resolution.
6. Engineer will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
a. See Division 01 Section "Submittal Procedures" for requirements related to use of Engineer's digital data files.
b. Engineer will provide data file layer information. Record markups in separate layers.

C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Engineer determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
2. Consult Engineer for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:
   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of Engineer.
   e. Name of Contractor.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Engineer's reference during normal working hours.

END OF SECTION

DIVISION 2 – EXISTING CONDITIONS

SECTION 024000 – DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

A. This section includes improvements related to Demolition during Construction including:
   1. Demolition of existing manholes, vaults, and, and low-pressure sewer system appurtenances as identified in the Plan Drawings.
   2. Contractor shall reference the approved HOP plans for demolition activities within the State Route in conjunction with this Specification. Should a conflict be identified between the HOP plans and the demolition procedures specified herein, the Contractor shall notify the Engineer immediately before proceeding with demolition activities.

1.3 SUBMITTALS

A. Project Schedule – Provide a detailed sequence of demolition activities and removal work, with starting and ending dates for each activity. Clearly denote interruptions of utility services (if any).

B. Predemolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces, which might be misconstrued as damage caused by building demolition operations. Submit before Work begins.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing Local, Commonwealth and Federal notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI A10.6 and NFPA 241.

1.5 PROJECT CONDITIONS

A. Demolition work, as specified herein, is not intended to be performed as a total wrecking operation but selective demolition as preparatory work relative to performance of various construction operations in the Project.

B. Existing Conditions:

1. Demolition information shown in the Contract Documents is based on visual field examination, existing record documents, and site survey. While the information provided is believed to be correct, no assurance is implied relative to its total completeness or accuracy. Report discrepancies to Engineer before disturbing existing installations.
2. The Contractor hereby distinctly agrees that neither the Owner nor the Engineer is responsible for the correctness or sufficiency of the information given and after his own Site Investigation:
    a. That he shall have no claim for delay or extra compensation or damage against the Owner or the Engineer on account of the information given; and
    b. That he shall have no claim for relief from any obligation or responsibility under the Contract with respect to the above stated stipulations.
3. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Owner’s use of buildings/structures:
1. Structures shall not be demolished until the new force main is installed and in operation.
2. Contractor shall provide written notification not less than 72 hours prior to commencement of demolition activities.
3. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
4. Maintain access to existing walkways, exits, and other adjacent occupied or used facilities.

D. Exterior Dust control: To prevent unnecessary spread of dust during performance of exterior demolition work, thoroughly moisten surfaces and debris as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other work on the site. Water for use in dust control shall be obtained from Contractor’s own source.

E. Protection During Demolition: Exercise care during demolition work to confine demolition operations to the areas as indicated on the Drawings. The physical means and methods used for protection are at the contractor’s option. However, the contractor will be completely responsible for replacement and restitution work of whatever nature with no additional compensation paid.
1. Additionally, if public safety is endangered during the progress of the demolition work, provide adequate protective measures to protect public pedestrian and vehicular traffic on streets and walkways.
2. Signs, signals, and barricades used shall conform to requirements of Federal, State and local laws, rules, regulations, precautions, orders and decrees.

F. Explosives and Blasting: Not permitted in performance of demolition work.

G. Storage or sale of removed items or materials on-site is not permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials needed or required for temporary protection in the form of barricades, fences, enclosures, etc., may be pre-used construction materials of sound condition and reasonably clean. However, the condition of same materials shall meet or exceed the requirements of governing agencies or approving bodies as may be involved with the work.

B. Equipment, machinery and apparatus, motorized or otherwise, used to perform the demolition work may be used as chosen at the Contractor's discretion, but which will perform the work within the limits of the Contract requirements.

C. Manhole and Concrete Vault Demolition:
   1. Demolition of the existing manholes and concrete vaults shall be completed in the following manner:
      a. Remove frame and cover.
      b. Remove concrete to a minimum of 2' below grade.
      c. Backfill existing structures with 2A aggregate, compact according to 312333 and complete surface restoration according to the Plan Drawings and approved HOP drawings.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to performance of the actual work, carefully inspect the entire site and locate those objects and structures designated to be demolished and removed. Verify with the Engineer the objects being removed and objects to be preserved.

B. Locate existing exposed and buried active utilities and determine the requirement for their protection, or their disposition with respect to the demolition work.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.

D. If applicable, verify that hazardous materials have been remediated before proceeding with building demolition operations.

E. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving structures to be demolished.
   1. Owner will arrange to shut off indicated utilities when requested by Contractor.
   2. If utility services are required to be removed, relocated, or abandoned, before proceeding with demolition provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
   3. Cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

F. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished. Strengthen or add new supports when required during progress of demolition.

G. Removed and Salvaged Items: Comply with the following:
   1. Clean salvaged items of dirt and demolition debris.
   2. Pack or crate items after cleaning. Identify contents of containers.
   3. Store items in a secure area until delivery to Owner.
   4. Transport items to Owner's storage area designated by Owner.

5. Protect items from damage during transport and storage.

H. The Contractor will remove the liquid (including sewage) from liquid containing structures where work is required.

3.2 DEMOLITION PRACTICES

A. General Requirements: The means and methods of performing demolition and removal operations are the sole responsibility of the Contractor. However, equipment used, and methods of demolition and removal will be subject to approval of the Engineer.
1. Do not use cutting torches until work area is cleared of flammable materials.
2. Maintain portable fire-suppression devices during flame-cutting operations.
3. Maintain adequate ventilation when using cutting torches.

B. Engineering Surveys: Perform surveys as the Work progresses to detect hazards that may result from demolition activities.

C. Abandoned Equipment and Machinery: Existing equipment and machinery in or on the structures, not claimed as salvage by the Owner, shall also become the property of the Contractor and may not be disposed of on the Site but removed and disposed of in a lawful manner, off Site.

D. Salvage: The Owner shall have the right to claim as salvage any items and materials removed under the work of this Section. Should such right of salvage be exercised by the Owner, move and neatly store removed items on the site in a location agreeable to the Owner, in a manner approved by the Engineer.

E. Perform removal of masonry and concrete debris, keeping such debris dampened during removal and until outside building.

3.3 REPAIRS AND RESTORATION OF SURFACES

A. General: Promptly repair damage to adjacent construction caused by demolition operations.

B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

C. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.4 DISPOSAL OF MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in a PA DEP/EPA-approved landfill.

B. Do not allow demolished materials to accumulate on-site.

C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

D. Burning: Do not burn demolished materials.

3.5 PROTECTION

A. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during demolition and reinstalled in their original locations after demolition operations are complete.

B. Existing Utilities: Maintain utility services indicated to remain and protect them against damage during demolition operations.
   1. Do not interrupt existing utilities serving adjacent facilities unless authorized in writing by Owner and authorities having jurisdiction.
   2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
   3. Provide at least 72 hours' notice to Owner if shutdown of service is required during changeover.

C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, as required.
   1. Protect existing site improvements, appurtenances, and landscaping to remain.
   2. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
   3. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
   4. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
   5. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
   6. Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise from occupied portions of adjacent buildings.

END OF SECTION

DIVISION 31 – EARTHWORK

SECTION 312300 - EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes temporary excavation support and protection systems.

1.2 PERFORMANCE REQUIREMENTS

A. Design, furnish, install, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting soil and hydrostatic pressure and superimposed and construction loads.
   1. Provide professional engineering services needed to assume engineering responsibility, including preparation of Shop Drawings and a comprehensive engineering analysis by a qualified professional engineer.
   2. Prevent surface water from entering excavations by grading, dikes, or other means.
   3. Install excavation support and protection systems without damaging existing buildings, pavements, and other improvements adjacent to excavation.

1.3 SUBMITTALS

A. Shop Drawings for Information: Prepared by or under the supervision of a qualified professional engineer for excavation support and protection systems.
   1. Include Shop Drawings signed and sealed by the qualified professional engineer responsible for their preparation in Pennsylvania.

B. Qualification Data: For Installer and professional engineer.

C. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by the absence of, the installation of, or the performance of excavation support and protection systems.

1.4 PROJECT CONDITIONS

A. Existing Utilities: 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.

B. Owner will not be responsible for interpretations or conclusions drawn from the Plans and Specifications.
   1. Make additional test borings and conduct other exploratory operations necessary for excavation support and protection.

C. Survey adjacent structures and improvements, employing a qualified professional engineer or land surveyor; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
   1. During installation of excavation support and protection systems, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Engineer if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that are either new or in serviceable condition.

B. Structural Steel: ASTM A 36/A 36M, ASTM A 690/A 690M, or ASTM A 992/A 992M.

C. Steel Sheet Piling: ASTM A 328/A 328M, ASTM A 572/A 572M, or ASTM A 690/A 690M; with continuous interlocks.

D. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of 3 inches.

E. Shotcrete: Comply with Division 3 Section "Shotcrete" for shotcrete materials and mixes, reinforcing, and shotcrete application.

F. Cast-in-Place Concrete: ACI 301, of compressive strength required for application.

G. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.
   1. Shore, support, and protect utilities encountered.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

C. Locate excavation support and protection systems clear of permanent construction so that forming and finishing of surfaces is not impeded.

D. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.
   1. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

3.2 SOLDIER BEAMS AND LAGGING

A. Install steel soldier beams before starting excavation. Space soldier beams at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment.

B. Install wood lagging within flanges of soldier beams as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.

C. Install wales horizontally at centers indicated and secure to soldier beams.

3.3 SHEET PILING

A. Before starting excavation, install one-piece sheet piling lengths and tightly interlock to form a continuous barrier. Limit vertical offset of adjacent sheet piling to 60 inches. Accurately align exposed faces of sheet piling to vary not more than 2 inches from a horizontal line and not more than 1:120 out of vertical alignment. Cut tops of sheet piling to uniform elevation at top of excavation.

3.4 TIEBACKS

A. Tiebacks: Drill for, install, grout, and tension tiebacks into position. Test load-carrying capacity of each tieback and replace and retest deficient tiebacks.
   1. Test loading shall be observed by a qualified professional engineer responsible for design of excavation support and protection system.

B. Maintain tiebacks in place until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.5 BRACING

A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.
   1. Do not place bracing where it will be cast into or included in permanent concrete work, unless otherwise approved by Engineer.
   2. Install internal bracing, if required, to prevent spreading or distortion of braced frames.
   3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.6 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.

B. Remove excavation support and protection systems to a minimum depth of 48 inches below overlying construction and abandon remainder.

C. Repair or replace, as approved by Engineer, adjacent work damaged or displaced by removing excavation support and protection systems.

END OF SECTION

DIVISION 31 – EARTHWORK

SECTION 312319 – DEWATERING

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes
   1. Control of groundwater and surface run-off for construction period.
   2. Discharge of drainage water from construction site.
   3. Coordinating dewatering work with requirements of other trades and units of work affected by dewatering operations.

1.2 DEFINITIONS

A. Subgrade: Surface to which excavations are necessarily made for the purpose of construction of the Work in accordance with the Contract Documents. Subgrade as defined does not include additional depths of excavation that may be required or ordered to obtain desired foundation conditions.

1.3 SYSTEM DESCRIPTION

A. Design and Performance Requirements
   1. Design, construct, and maintain a dewatering system.
   2. Install and operate dewatering systems, in coordination with the design and construction of excavation shoring systems, excavation and backfilling operations, to meet performance requirements.
   3. Prevent surface run-off from entering excavations. Construct ditches, berms, and similar items as required to lead water away from excavation. Do not allow silt laden run-off water to enter water courses. Direct runoff flows to siltation ponds or catchment areas.
   4. Dewater and keep excavations free of water to permit placing geotexiles, granular filter blankets, underdrains, granular construction working surface, concrete, and similar items, on firm dry subgrade.
   5. Maintain groundwater level a minimum of 12 inches below the subgrade or lower as may be required to fulfill the requirements of the specifications.
   6. Prevent destabilization, heaving and shear failure of the bottom of excavation by depressurizing and dewatering groundwater.
   7. Prevent damage to or displacement of structures from groundwater pressures.
   8. Maintain groundwater a minimum of 12 inches below the subgrade until backfilling to final grade has been completed and underdrains and other permanent devices, which protect the structures against buoyancy are operational. Where designed self weight of structure resists the buoyancy forces, make sure that the structure is completely built before allowing groundwater level to rise.
   9. Obtain the Engineer’s written consent prior to allowing a rise in groundwater level or prior to shutting down the dewatering operation.
   10. Repair or replace any structure or Works damaged due to dewatering at no expense to the Owner.

B. Dewatering Discharge Requirements
   1. Provide appropriate filter screens so that no soil or foundation material is removed.

2. Provide a pumped water filter bag, or similar method, of required size so that the discharged water will meet state regulations. Discharge water from run-off collection and dewatering according to applicable regulations and as directed by the engineer.
3. Maintain pumped water filter bag as necessary to maintain functionality during construction.
4. If discharging to water course, prevent erosion of existing banks.

1.4 SUBMITTALS

A. Shop Drawings
1. Submit a general plan of dewatering scheme which includes:
   a. Location of generators and other noise producing equipment and anticipated decibel levels.
   b. Relationship between dewatering equipment, new structures, and the excavation plan.
   c. Location of dewatering discharge points.
   d. Location and dimensions of siltation pond.
   e. Details of screens and filter media.
2. These submittals are for record purposes only and will not be reviewed for adequacy.

B. Dewatering Equipment Approval
1. Apply and obtain dewatering equipment approval from local conservation authority if required.

C. Dewatering Discharge Approval
1. Apply and obtain dewatering discharge approval from local conservation authority if required.

1.5 QUALITY ASSURANCE

A. Qualifications
1. Specialist dewatering contractor who has a minimum of 8 years experience in the design and construction of dewatering systems for projects of similar size and complexity.

1.6 SITE CONDITIONS

A. It is the responsibility of the contractor to assess soil conditions and determine necessary dewatering procedures.

PART 2 – PRODUCTS

2.1 EQUIPMENT

A. Dewatering Equipment
1. Pipes, wells, deep wells, well points, pumps, electrical generators, and other equipment.
2. Standby pumps and a generator with effective muffling devices to keep noise levels to a minimum.

PART 3 – EXECUTION

3.1 INSTALLATION

A. Dewatering Equipment
   1. Install dewatering equipment and dewater to required level before proceeding to excavate below groundwater level.
   2. Take corrective measures to maintain groundwater level at a sufficiently low level to meet performance requirements.

B. Subexcavation
   1. When directed by the Engineer to subexcavate because of unsuitable subgrade condition, dewater and monitor effectiveness of dewatering before proceeding to excavate.

C. Flotation of Structures
   1. Maintain groundwater at a sufficiently low level to prevent damage or displacement of structures by groundwater pressures.
   2. Protect completed structures or part of completed structures which would suffer displacement or other damage as a result of dewatering equipment failure by providing:
      a. Standby dewatering equipment connected directly to electrical generators, engaging automatically in case of power failure.
      b. A positive means by which the structures may be flooded with water to neutralize exterior hydraulic pressures.
      c. A combination of the two alternatives above.

3.2 FIELD QUALITY CONTROL

A. Monitoring Groundwater Level (If necessary)
   1. Take readings of groundwater level two times a day for the duration of the dewatering period. Keep a written record of groundwater levels.

END OF SECTION

DIVISION 31 - EARTHWORK

SECTION 312333 - TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Excavating trenches for utilities and site piping.

B. Backfilling and compaction of utility and site piping trenches.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:
   1. AASHTO T 99, Moisture-Density Relations of Soils, Using a 5.5-lb Rammer and a 12-inch Drop.
   2. AASHTO T 191, Standard Method of Test for Density of Soil In-Place by the Sand Cone Method.

B. American Society for Testing and Materials:
   1. ASTM D698 - Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.
   2. ASTM D1556 - Test method for Density and Unit Weight of Soil in Place by Sand Cone Method.
   3. ASTM D 2216 - Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock.
   4. ASTM D2321 - Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe.
   5. ASTM D2922 - Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
   6. ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
   7. ASTM D4643 - Test Method for Determination of Water Moisture Content of Soil by the Microwave Oven Method

C. Pennsylvania Department of Transportation:
   1. PADOT Publication 408, 1994 edition
      a. PADOT Section 703.2, Coarse Aggregate
      b. PADOT Section 703.3, Select Granular Material
   2. PADOT Publication 19 – Field Test Manual
   3. PADOT Chapter 459, Occupancy of Highways by Utilities, latest edition
   4. PADOT Chapter 203, Work Zone Traffic Control, latest edition

1.3 DEFINITIONS

A. Definitions:
   1. Rock Excavation: Removal of consolidated hard mineral material mass exceeding one-half cubic yard in volume which, cannot be excavated except by drilling and blasting or drilling and wedging. Structure foundations of concrete or of masonry or stone laid in cement-mortar is classified as rock if the volume requiring removal at a single location exceeds one-half cubic yard. No soft or disintegrated rock which can be removed with a pick, or material which can be broken down by sledge hammers, or a ledge or single boulder less than one-half

cubic yard in volume, or loose, shaken, or broken stone in rock filling or elsewhere, or rock exterior to the line of measurement as hereinafter specified, will be allowed as rock.

2. Subgrade: Trench bottom prepared as specified to receive first class bedding, concrete cradle or concrete encasement or the bottom of excavations prepared to receive pipe line structures.
3. Utility: Any buried pipe, duct, conduit or cable.
4. Final Surfacing Elevation: Elevation of bottom of final surfacing operation such as bottom of topsoil depth or paving subgrade.

1.4 SUBMITTALS

A. Samples: Submit aggregate samples when requested by Engineer and other required submissions to the Engineer's field office.

B. Test Reports:
1. Submit testing laboratory aggregate test reports based on requirements stated in Source Quality Control.
2. Compaction density test reports based on method of density determination as specified in Reference Standards and the method as approved by the Engineer.

C. Certificates: Submit certificate from aggregate supplier based on requirements stated in Source Quality Control, when requested by Engineer.

D. Bonds and Licenses: Submit evidence of bonds, licenses, and experience prior to commencement of any blasting operations.

1.5 QUALITY ASSURANCE

A. Source Quality Control:
1. Laboratory Tests: In accordance with Section 014000, aggregate materials specified herein under Products require advance examination or testing according to methods referenced, or as required by the Engineer.
   a. Testing laboratory shall furnish both Engineer and Contractor two copies of test result reports. Same reports will be considered as sufficient evidence of acceptance or rejection of materials represented.
   b. Conduct aggregate quality tests in accordance with requirements of appropriate Referenced Standard for such materials.
   c. c. The Engineer reserves the right to accept aggregate materials based on certification from supplier that the aggregate originates from a source approved by PADOT and that the aggregate complies with specified PADOT requirements.

B. Regulatory Requirements
1. Work performed within Owner’s property or rights-of-ways shall be completed according to all requirements of the Owner.

1.6 PROJECT CONDITIONS

A. Classification of Excavated Materials: Consideration will not be given to the nature of the materials encountered in trenching operations or for difficulties encountered during excavating or handling of materials. But, if rock, as defined, is encountered in trenching operations, immediate notification of the Owner/Engineer must be made. Records of the amount of rock encountered must be kept in a manner approved by the Owner/Engineer and submitted for records.

B. Removal of Obstructions:
1. Remove, realign or change the direction of above or below ground utilities and their appurtenant supports, if such is required in the opinion of the Engineer. Perform such work as extra work unless such work is done by the Owner of the obstruction without cost to the

Contractor. However, Contractor shall uncover and sustain the obstruction at own expense prior to the final disposition of obstruction. The Contractor is not entitled to claims for damage or extra compensation due to the presence of such obstruction or delay in the removal or rearrangement of same. Additional precautions concerning obstructions as follows:

a. Do not interfere with persons, firms, corporations or utilities employing protective measures, removing, changing or replacing their property or structures, but allow said persons, firms, corporations or utilities to take such measures as they may consider necessary or advisable under the circumstances; which shall not relieve the responsibilities of the Contract.

b. Without extra compensation, break through and reconstruct if necessary, the invert or arch of a sewer, culvert or conduit that may be encountered if the said structure is in such a position, in the judgment of the Engineer, as not to require its removal, realignment or complete reconstruction.

C. Environmental Requirements:

1. Do not perform trenching, backfilling or compacting when weather conditions or the condition of materials are such, in the opinion of the Engineer, that work cannot be performed satisfactorily.
2. Do not use frozen materials as backfill nor wet materials containing moisture in excess of the amount necessary for satisfactory compaction.
3. Prior to use, moisten dry backfill material not having sufficient moisture to obtain satisfactory placement or compaction.
4. Plan work so as to provide adequate protection during storms with provisions available for preventing flood damage. Protect installed piping and other work against damage from uplift due to high ground water levels.
5. Accommodation of Drainage: Keep gutters, sewers, drains and ditches open for surface drainage. No damming or ponding or water in gutters or other waterways will be permitted, except where stream crossings are necessary and then only to an extent which the Engineer shall consider necessary. Do not direct water flows across or over pavements except through approved pipes or properly constructed troughs. When so required, provide pipes or troughs of such sizes and lengths as required, and place the same as required at no expense to the Owner. Perform grading in the vicinity of trenches so that the ground surface is properly pitched to prevent water running into the trenches.
6. Pumping: Keep excavations free from water during the performance of the work under this Contract at no expense to the Owner. Build dams and other devices necessary for this purpose and provide and operate pumps of sufficient capacity for dewatering the excavations. Provide for the disposal of the water removed from excavations in such manner as not to cause injury to the public health, to public or private property, to the work of others, to the portion of the work completed or in progress or produce an impediment to the use of streets, roads and highways.
7. When it is necessary to haul soft or wet soil material over roadways, use suitably tight vehicles to prevent spillage. Clear away spillage of materials caused by hauling on roadways.
8. Provide effective dust and mud control.
9. Do not dispose of water in trenches by draining through completed portions of sewer piping.

D. Protection: Assume the risks attending and presence or proximity of overhead or underground public utility and private lines, pipes, conduits and support work for same, existing structures and property of whatever nature. Damages and expenses for direct or indirect injury to such structures or to any person or property by reason of them or by reason of injury to them; whether such structures are or are not shown on the Drawings, by work of this Contract, rests solely with the Contractor.

1. Outside Trenching Area: Take necessary precautions to protect trees, shrubs, lawns and such other landscaping from damage. Complete restitution work for damages at no additional cost to Owner.

2. Pipe Supports: Adequately support underground pipes or conduits exposed as a result of excavations. Provide adequate support along their entire exposed length. Install such supports in such manner that backfilling may be performed without dislodging such pipes or conduits. Place and carefully compact Aggregate Backfill around the supports and leave such supports in place as a guard against breakage due to backfill settlement. No additional payment will be due the Contractor for support material left in place or for the labor of installing and maintaining supports.
3. Temporary Protective Construction:
    a. Temporary Fence Barricade: Erect and maintain substantial temporary fences surrounding excavation to prevent unauthorized persons from entering such areas.
    b. Barricades: Furnish and erect substantial barricades at crossings of trenches, or along trenches, to protect the traveling public.
    c. Excavation Covers: Cover open excavation when work therein is suspended or left unattended, including the end of a work day. For such covers, use materials of sufficient strength and weight to prevent their removal by unauthorized persons.
    d. Remove temporary protective construction at the completion of work on the Project.
    e. Comply with Owner and PA DOT requirements.

E. Structure Supports: Where passing buildings or any structure which by their construction or position might bring a great pressure upon the trenches, the right is reserved by the Engineer to require that such buildings or structures be underpinned or supported and protected, or special sheeting be driven or that short lengths of trench be opened at one time. Failure of Engineer to recommend said protection shall not relieve Contractor of his responsibility to protect structures near the construction.

F. Accommodation of Traffic: (Comply with the requirements of Section 01500.) DO NOT OBSTRUCT FIRE HYDRANTS. Employ traffic control measures in accordance with PADOT, Title 67, Chapter 203.

G. Removal of Rock by Means Other Than Blasting: Blasting will not be permitted on this project. Where removal of rock is required, do so in accordance with the requirements of State and local laws, rules and regulations, and utility owner requirements, remove by the use of mechanical surface impact equipment, or by drilling and hydraulic rock splitting equipment, or by other methods.

H. Responsibility for Condition of Excavation: Condition and results of excavation are solely the responsibility of the Contractor. Remove slides and cave-ins at whatever time and under whatever circumstance they occur.

I. Excess Materials: No right of property in materials is granted to the Contractor of excavated materials prior to backfilling. This provision does not relieve the Contractor of his responsibility to remove and dispose of surplus excavated materials.

J. Borrow Material: When the required quantity of backfill material exceeds the quantity of suitable on site material, provide borrow material. If borrow material is needed, notify the Engineer sufficiently in advance to permit the Engineer to verify such need and to view the proposed borrow pit to determine the material suitability. Borrow excavation will be subject to the Engineer's approval whose written consent shall be obtained prior to its use. Contractor shall be responsible for all sampling and testing required by Engineer to determine suitability.

K. Change of Trench Location or Depth:
1. Should the Engineer require a change in location of a trench from that indicated on the Drawings due to the presence of an obstruction, or from other cause and such change is made before the excavation is begun, the Contractor shall not be entitled to extra compensation or to a claim for damages.
2. The Contractor shall have no claim for additional compensation as a result of changes in trench depths or locations.

3. If a changed location of a trench is authorized by the Engineer upon the Contractor's request, the Contractor shall not be entitled to extra compensation or to a claim for damage. If such change of trench location involves the abandonment of excavation already made, the abandoned excavation and backfill shall be at the Contractor's expense.

L. Advance Trenching: Where existing Utilities or other suspected underground obstructions as indicated on the Drawings are within close proximity of proposed pipelines, uncover and verify the exact location of Utilities and other underground obstructions far enough in advance of pipe laying to allow any changes in pipe alignment or grade required to bypass the obstructions to avoid removing sections of pipe already installed. If any sections of installed pipe must be removed and reinstalled as a result of not verifying Utilities or other underground obstructions far enough in advance, the Contractor shall remove and reinstall the pipe at no additional cost to Owner.

1.7 COORDINATION

A. Coordinate work under provisions of Sections 011000.

B. Verify work associated with lower elevation Utilities is complete before placing higher elevation Utilities.

PART 2 - PRODUCTS

2.1 FILL MATERIAL

A. Backfill
1. Suitable Trench Backfill Material: On site excavated soil or soil-rock mixed materials free of topsoil, vegetation, lumber, metal and refuse; and free of rock or similar hard objects larger than six inches in greatest dimension. Rock to soil ratio shall not exceed one part rock to three parts soil.
2. Clean Organic Material Backfill: One site excavated material free of vegetation, lumber, metal and refuse, and free of rocks or similar hard objects larger than one inch in greatest dimension. Rock to soil ratio shall not exceed one part rock to three parts soil.
3. Aggregate Backfill: PADOT 2A Coarse Aggregate conforming to PADOT Publication 408, Section 703.
4. Select Material Backfill: PA DOT 2RC material conforming with PA DOT Publication 408, Section 703.

B. Pipe Bedding
1. First Class Bedding: Coarse Aggregate conforming to PADOT Publication 408, Section 703.2
   a. For piping having a diameter of 24 inches and less use AASHTO No. 8 Coarse Aggregate.
   b. For pipes having a diameter greater than 24-inches use AASHTO No. 57 Coarse Aggregate.
2. Initial Backfill: Coarse Aggregate conforming to PADOT Publication 408, Section 703.2
   a. For piping having a diameter of 24 inches and less, use AASHTO No. 8 Coarse Aggregate.
   b. For pipes having a diameter greater than 24-inches use AASHTO No. 57 Coarse Aggregate.
   c. For ductile iron piping, use clean earth backfill or, if aggregate backfill is required, use aggregate backfill.
4. Final Backfill
   a. Unimproved (Class 2): Use select excavated material free of organics, debris, frozen material, and stones larger than 3 inches, unless aggregate backfill is required.

b. Improved Surface: Utility lines under both state and municipal roads, and other improved areas as identified in the Plan Drawings and Specifications will require PennDOT 2A aggregate in accordance with PennDOT 408 for final backfill.

C. Concrete Cradle and Encasement: Conforming to Section 033000 - Cast-in-Place Concrete with a 28-day compressive strength of 3,000 psi.

D. Unsuitable Bearing Material: AASHTO No. 3 Coarse Aggregate conforming to PADOT Publication 408, Section 703.2.

PART 3 - EXECUTION

3.1 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Protect plant life, lawns, rock outcropping and other features remaining as a portion of final landscaping.

C. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

D. Maintain and protect above and below grade utilities which are to remain.

3.2 EXCAVATING

A. Perform soil erosion and sedimentation control work in accordance with the approved Erosion and Sedimentation Control Plan.

B. General:
1. Excavation shall be performed to the lines and grades indicated on the Drawings or as directed by the Engineer.
2. Perform excavation and backfilling using machinery except where hand excavation and backfilling is required or is necessary to protect existing structures, utilities, or other private or public properties.
3. Begin excavation in trenches at the control point having the lower invert and proceed upward.
4. Remove rock to subgrade at least twenty-five (25) feet in advance of pipe laying.
5. Do not interfere with 45 degree bearing splay of foundations.

C. Subgrade Preparation:
1. Do not excavate below depths indicated or specified except where unsuitable material is encountered at subgrade.
2. Remove unsuitable material found below subgrade to a depth determined by Engineer and backfill with Unsuitable Bearing Replacement material or as directed by Engineer to required Subgrade.
3. Remove rocks or other hard matter protruding through trench bottom at Subgrade which could damage pipe or impede consistent backfilling or compaction. Backfill with first class bedding to required Subgrade. Compact in four (4) inch lifts.
4. Remove rock below subgrade if shattered due to excessive drilling impact or splitting operations and in the opinion of the Engineer it is unfit for foundations. Backfill to Subgrade with Concrete or other material acceptable to the Engineer. No separate or additional payment will be made for such removal and backfill.

D. Excavated Material Storage:

1. Stockpile areas will not be provided on site. The contractor shall perform all excavation and material handling using a direct-haul operation, with excavated materials loaded directly into trucks and removed from the site without temporary stockpiling.

E. Trench Width:
1. From subgrade elevation to an elevation at least twelve inches above the top of the outside barrel of the pipe, excavate trench banks to vertical lines and not less than the minimum nor more than the maximum widths specified in Table A. If shoring is required, the following Table A dimensions apply to the inside face of sheeting.

TABLE A

Diameter of Pipe	Min. Trench Width (Outside Diameter of Pipe at the Barrel Plus)	Max. Trench Width (Outside Diameter of Pipe at the Barrel Plus)
4 through 24 inches	12 inches	16 inches
27 through 36 inches	20 inches	24 inches
42 through 72 inches	26 inches	30 inches
Larger than 72 inches	30 inches	36 inches

2. From a point twelve inches above the top of the outside barrel of the pipe, maintain trench banks as follows:
   a. Vertical as possible for trenches in paved or unpaved roadways.
   b. In open areas, trenches may be sloped at angles required to make trench stand, however, in no case shall angle exceed one-half horizontal to one vertical.
   c. Top of trench shall not exceed limits of right of way or construction easement if such is in place.
   d. Maintain trenches such that there is no conflict with State or OSHA regulations.

F. Length of Open Trench:
1. Complete trench excavation at least twenty-five (25) feet but not more than one hundred (100) feet in advance of pipe laying and keep trenches free from obstructions, except that at the end of a work day or at the discontinuance of work, the pipe laying may be completed to within five feet of the end of the open trench.
2. The Contractor shall limit all trench openings to a distance commensurate with all rules of safety.
3. If the work is stopped either totally or partially, the Contractor shall refill the trench and temporarily repave over the same at his expense. The trench shall not be opened until he is ready to proceed with the construction of the pipeline.
4. Engineer reserves the right to request trench refilling over completed pipe if in his judgment, such action is necessary. No claim for extra compensation will be allowed for such refilling even though work may be stopped elsewhere as a result.

3.3 PIPE BEDDING

A. Place Pipe Bedding and Initial Backfill as specified herein unless indicated otherwise on Drawings. Place material in trench for full width. Place on each side of pipe and fittings simultaneously.

B. First Class Bedding: Carefully place on undisturbed subgrade or compacted subgrade as approved by the Engineer, pipe bedding material from six (6) inches below outside of pipe barrel to pipe springline. Work pipe bedding material by hand under pipe haunching to provide adequate side support. Place in three (3) inch layers.

C. Initial Backfill: From pipe springline to twelve (12) inches above outside of pipe barrel carefully place initial backfill in four (4) inch layers. Place carefully so as not to disturb pipe.

3.4 BACKFILL

A. Backfill trenches to contours and elevations indicated on Drawings.

B. Maintain optimum moisture content of fill materials to attain required compaction density.

C. Do not use frozen backfill materials or place backfill on frozen subgrades or trench subgrades.

D. Perform backfilling by methods which will result in thorough compaction of backfill material.

E. Backfill to Final Restoration Elevation: Backfill from one (1) foot above the top of pipe to Final Surface Subgrade Elevation using backfill materials specified in Schedule at end of this Section. Consolidate backfill materials evenly from center to side of trench to prevent arching.

F. If there is a deficiency of backfill material, provide borrow material as required at no additional cost to Owner

3.5 COMPACTION

A. Solidly tamp each layer of bedding around the pipeline and above pipeline using proper tamping tools made especially for this purpose. Compact each layer to the densities specified in the Schedule contained at the end of this Section using ASTM D698 Standard Proctor Test Methods determined at maximum density at optimum moisture content as determined by AASHTO T 99.

B. Do not use rolling equipment or heavy tampers to consolidate backfill until at least two (2) feet of backfill is placed over the top of the pipe.

C. The use of HYDRA-HAMMER for compacting backfill in trenches is prohibited.

D. The use of puddling or jetting for compacting backfill in trenches is prohibited.

E. Compaction Tests: During the course of backfilling and compacting, the Owner/Engineer will at various locations and depths of trenches request that the Contractor make field tests to verify that specified compactions are being achieved. Perform field density tests according to AASHTO T 191 or ASTM D2922 and ASTM D3017. At a minimum, the following will apply:
   1. One compaction test shall be performed at every two vertical feet of backfill every 200 linear feet in roadways, paved areas, and driveways, etc.

   2. One compaction test shall be performed at every four vertical feet of backfill every 500 linear feet in all other areas.

F. Compaction Requirements: Compaction of backfill materials are specified in Schedule at end of this Section.

G. If compaction tests indicate that Work does not meet specified requirements, remove Work, replace, compact and retest at no additional cost to the Owner.

3.6 CLEAN-UP AND MAINTENANCE

A. General: During construction, the surfaces of all areas including, but not limited to, roads, streets, and driveways shall be maintained on a daily basis to produce a safe, desirable, and convenient condition. Streets shall be swept and flushed after backfilling, and recleaned as dust, mud, stones and debris caused by the work, or related to the work again accumulates.

B. Remove surplus excavated materials, rubbish and other construction debris from the site after backfilling is completed.

C. Construction site shall be left clean at end of each working day to satisfaction of Engineer.

END OF SECTION

BACKFILL AND COMPACTION SCHEDULE

Location	Backfill Material	Compaction Required
Unpaved Trenches/Exc.	Suitable Material	95%
Paved Trenches/Exc.	Aggregate Backfill	95%

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 321200 – FLEXIBLE ASPHALT PAVING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Repair of Access Drives, Local Roads, and Parking Areas. All restoration in the PennDOT owned road shall be completed according to the approved Highway Occupancy Permit Plan Drawings.

1.2 REFERENCES

A. The "PENNDOT Sections" noted herein refer to sections contained in the current Commonwealth of Pennsylvania Department of Transportation Specifications Publication 408, as supplemented or revised. The references pertain only to materials, construction, equipment, methods and labor. The payment provisions do not apply to work to be performed under this Contract.

B. Commonwealth of Pennsylvania Department of Transportation Specifications Publication 408, latest edition.
   1. PENNDOT Section 210 Subgrade.
   2. PENNDOT Section 350 Subbase.
   3. PENNDOT Section 601 Pipe Culverts
   4. PENNDOT Section 703 Aggregates.

1.3 SUBMITTALS

A. Certificates: Furnish certification from bituminous and aggregate producer attesting that materials conform to requirements of PENNDOT Specifications.

B. Material Slips: Furnish certification of the amount of materials utilized from the producer in accordance with PENNDOT specifications.

1.4 QUALITY ASSURANCE

A. Source Quality Control:
   1. Use materials conforming to PENNDOT Publication 408, latest edition and supplementary bulletins thereto.

B. Requirements of Regulatory Agencies:
   1. Removal, protection and replacement of paving on State Highways must be performed in accordance with the requirements of the Commonwealth of Pennsylvania, Pennsylvania Code, Title 67, Transportation, Department of Transportation, Chapter 459, Occupancy of Highways By Utilities, latest edition.
   2. Removal, protection and replacement of paving on roadways other than state highways must be performed in accordance with the requirements of the municipality.
   3. Employ traffic control measures in accordance with PENNDOT, Title 67, Chapter 203.

1.5 JOB CONDITIONS

A. Protection:
   1. Protect surfaces outside of the proposed surfacing area. Repair area outside of the proposed access road damaged by constructing operations at no additional expense to Owner.

2. Use all means necessary to protect and maintain materials before, during, and after installation. Protect installed work and materials of all other contractors.

B. Environmental Requirements:
1. Do not install aggregate courses when ambient temperature is below or is expected to fall below freezing.
2. Do not use aggregate containing frost nor place aggregate courses on frozen subgrade.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Reference paving details in Plan Drawings for local roads, access drives, and parking lots.

B. Reference Approved HOP Plans for State Road Restoration.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that backfill to surfacing subgrade as specified in Section 312300 has been properly completed.

3.2 PREPARATION

A. Prepare surface per PennDOT publications, i.e. grade off topsoil and organics, roll and compact surface.

B. Conditions of the road construction shall be done in suitable dry weather conditions and where surface conditions exhibit a firm compact subgrade.

3.3 INSTALLATION

A. General: Depth, location, and placement to match existing site conditions unless otherwise indicated in Plans. CONTRACTOR to measure pavement depths and type upon cutting and patching and provide report to ENGINEER. Asphalt driveway/parking area and access drive shall be paved according to the details provided in the Plan Drawings.

B. Aggregate Subbase: Construct and place in accordance with the requirements of PENNDOT Section 350.
1. Install on prepared subgrade as specified in PENNDOT Section 210.

2. Install subbase to underside of base course or final paving as indicated or required.

3.4 CLEAN-UP AND MAINTENANCE

A. During construction, surfaces of all areas including, but not limited to, roads, streets, and driveways shall be maintained on a daily basis to produce a safe, desirable, and convenient condition.
1. Streets shall be swept and flushed after backfilling, and recleaned as dust, mud, stones and debris caused by the work, or related to the work again accumulates.

2. Failure of the CONTRACTOR to perform this work shall be cause for the ENGINEER to order the work to be done by others, and backcharge all costs to the CONTRACTOR.

B. Repair or Correction of Unsatisfactory Conditions: All unsatisfactory conditions resulting from the work shall be corrected.

C. Dust Control: Provide effective dust control by sprinkling water, by the use of calcium chloride or by any other methods approved by Engineer. Use dust control measures where, when and in a manner required by Engineer.

END OF SECTION

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 329200 – TURF AND GRASSES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Restoration of disturbed, non-paved areas including the following:
   1. Placing topsoil
   2. Soil conditioning
   3. Finish grading
   4. Seeding
   5. Sodding
   6. Maintenance

B. Work under this Section shall be performed in accordance with the approved Erosion and Sedimentation (E&S) Control Plans. In the event of a conflict between the E&S Control Plans and the requirements of this Section, the E&S Control Plans shall govern.

1.2 REFERENCES

A. American Association of State Highways and Transportation Officials (AASHTO).
   1. Pennsylvania Department of Transportation Publication 408 Specifications.
   2. Pennsylvania Seed Act of 1965, Act 187, as amended.
   3. Agricultural Liming Materials Act of 1978, P.L. 15, No. 9 (3 P.S. 132-1), as amended.
   4. Pennsylvania Soil Conditioner and Plant Growth Substance Law, Act of December 1, 1977, P.L. 258, No. 86 (3 P.S. 68.2), as amended.
   5. Rules for Testing Seeds of the Association of Official Seed Analysts.

1.3 SUBMITTALS

A. Certificates:
   1. Prior to use or placement of material, submit certifications of material composition of the following for approval:
      a. Topsoil analysis
      b. Fertilizer
      c. Lime
      d. Seed mixture(s)
   2. If soil tests are performed to justify decreased liming and fertilizer rates, submit certified soil sample analyses, including laboratory's recommended soil supplement formulation.

1.4 QUALITY ASSURANCE

A. Testing Agency:
   1. The Contractor has the option to use soil testing to justify decreasing lime and fertilizer rates. When soil testing is selected by the Contractor, the soil and soil supplement testing shall be performed by a Soils Testing Laboratory engaged and paid for by the Contractor and approved by the Engineer. Collect soil samples under the direction of the Engineer.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Seed:
   1. Deliver seed fully tagged and in separate packages according to species or seed mix. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.

B. Sod:
   1. Deliver sod to the project site within 24 hours after being cut and place sod within 36 hours after being cut. Do not deliver small, irregular, or broken pieces of sod.
   2. During wet weather, allow sod to dry sufficiently to prevent tearing during handling and placing. During dry weather, moisten sod to ensure its vitality and to prevent dropping of the soil during handling. Sod which dries out will be rejected.

1.6 PROJECT CONDITIONS

A. Restore unpaved surfaces to a condition similar to that prior to excavation.

B. Refer to Drawings and Special Conditions for seeding requirements at each specific location of Work.

PART 2 - PRODUCTS

2.1 TOPSOIL

A. Having a pH of between 6.0 and 7.0; containing not less than 2% nor more than 10% organic matter as determined by AASHTO T194.

B. Fertile friable loam, sand loam, or clay loam which will hold a ball when squeezed with the hand, but which will crumble shortly after being released.

C. Free of clods, grass, roots, or other debris harmful to plant growth.

D. Free of pests, pest larvae, and matter toxic to plants.

2.2 FERTILIZER

A. Reference E&S Plan Notes.

2.3 LIME

A. Raw ground limestone conforming to Section 804.2(a), Publication 408 Specifications.

2.4 SEED

A. Reference E&S Plan Notes.

2.5 SEED MIXTURES

A. Reference the temporary and permanent seed mixtures provided in the Erosion and Sedimentation Control Plan Drawings.

2.6 INOCULANT

A. Inoculate leguminous seed before seeding with nitrogen fixing bacteria culture prepared specifically for the species.

B. Do not use inoculant later than the date indicated by the manufacturer.

C. Protect inoculated seed from prolonged exposure to sunlight prior to sowing.

D. Reinoculate seed not sown within 24 hours following initial inoculation.

2.7 MULCHING MATERIALS

A. Mulches for seeded areas shall be one, or a combination of, the following:
   1. Straw:
      a. Cured to less than 20% moisture content by weight.
      b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
      c. Wheat or oat straw.

2.8 SOD

A. At least three-year-old, well-rooted Kentucky Bluegrass (Poa pratensis) sod containing a growth of not more than 10% of other grasses and clovers.

B. Free from noxious weeds such as bermuda grass, wild mustard, crab grass, and kindred grasses.

PART 3 - EXECUTION

3.1 TIME OF OPERATIONS

A. Spring Seeding:
   1. Reference the Erosion and Sedimentation Control Plan Details for spring seeding schedule.

B. Fall Seeding:
   1. Reference the Erosion and Sedimentation Control Plan Details for fall seeding schedule.

3.2 PREPARATION OF SUBGRADE

A. "Hard pan" or heavy shale:
   1. Plow to a minimum depth of 6".
   2. Loosen and grade by harrowing, discing, or dragging.
   3. Handrake subgrade. Remove stones over 2" in diameter and other debris.

B. Loose loam, sandy loam, or light clay:
   1. Loosen and grade by harrowing, discing, or dragging.
   2. Handrake subgrade. Remove rocks over 2" in diameter and other debris.

3.3 PLACING TOPSOIL

A. Replace topsoil and spread over the prepared subgrade to obtain the required depth and grade elevation. Final compacted thickness of topsoil not less than 4".

B. Handrake topsoil and remove all materials unsuitable or harmful to plant growth.

C. Do not place topsoil when the subgrade is frozen, excessively wet, or extremely dry.

D. Do not handle topsoil when frozen or muddy.

3.4 TILLAGE

A. After seed bed areas have been brought to proper compacted elevation, thoroughly loosen to a minimum depth of 5" by discing, harrowing, or other approved methods. Do not work topsoiled areas when frozen or excessively wet.

B. Liming:
   1. Reference the Erosion and Sedimentation Control Plans for liming application specifications.

C. Basic Fertilizer:
   1. Reference the Erosion and Sedimentation Control Plans for Fertilizer Application Specifications.
   2. Incorporate into soil to depth of 4" by approved methods.
   3. Incorporate as part of tillage operation.

D. Liming and Fertilizer rates may be decreased if lesser rates are indicated by soil tests provided by the Contractor.

3.5 FINISH GRADING

A. Remove unsuitable material larger than 2" in any dimension.

B. Uniformly grade surface to the required contours without the formation of water pockets.

C. Rework areas which puddle by the addition of topsoil and fertilizer. Rerake.

D. Distribute starter fertilizer at the following rates:

   10-5-5: 50 pounds per 1,000 square feet.
   12-6-6: 33 pounds per 1,000 square feet.

E. Incorporate starter fertilizer into the upper 1" of soil.

3.6 SEEDING

A. Uniformly sow specified seed mix by use of approved hydraulic seeder, power-drawn drill, power-operated seeder, or hand-operated seeder or by hand. Do not seed when winds are over 15 mph.

B. Upon completion of sowing, cover seed to an average depth of 1/4" by hand reraking or approved mechanical methods.

3.7 MULCHING

A. Mulching within 48 hours of seeding.

B. Place straw at rate specified in the Erosion and Sedimentation Control Plans.
   1. Anchor straw mulch by use of twine, stakes, wire staples, paper, or plastic nets.
   2. Emulsified asphalt may be used for anchorage provided it is applied uniformly at a rate not less than 31 gallons per 1,000 square yards.
   3. Apply approved chemical mulch binders at the manufacturer's recommended rate.

C. Chemical mulch binders or a light covering of topsoil may be used for anchorage when the size of the area precludes the use of mechanical equipment.

D. When mulch is applied to grass areas by blowing equipment, the use of cutters in the equipment will be permitted to the extent that a minimum of 95% of the mulch is 6" or more in length. For cut mulches applied by the blowing method, achieve a loose depth in place of not less than 2".

E. When mulching by the asphalt mix method, apply the mulch by blowing. Spray the asphalt binder material into the mulch as it leaves the blower. Apply the binder to the mulch in the proportion of 1.5 to 2.0 gallons per 45 pounds of mulch.
   1. Protect structures, pavements, curbs, and walls to prevent asphalt staining.

2. Erect warning signs and barricades at intervals of 50 feet or less along the perimeter of the mulched area.
3. Do not spray asphalt and chemical mulch binders onto any area within 100 feet of a stream or other body of water.

3.8 SODDING

A. Prior to sod placement, complete soil preparation or topsoiling.

B. Apply lime and fertilizer as specified. Work into the soil a minimum of 2".

C. Do not place sod when the temperature is lower than 32 degrees F.

D. Place sod by hand with tight joints and no overlap. Transverse joints shall be broken or staggered.

E. Place sod so that the top of the sod is flush with the surrounding grade.

F. Use of tools which damage the sod or dumping of sod from vehicles will not be permitted.

G. Water sod to the saturation point immediately after placement.

H. After watering, tamp with an approved tamper to close all joints and ensure close contact between sod and sod bed. After tamping, the sod shall present a smooth, even surface free from bumps and depressions. If so directed, use a light roller, weighing not more than 65 pounds per foot of roller width to complete firming and smoothing the sod.

I. When placing sod in ditches, place the strip with the long dimension at right angles to the flow of water. At any point where water will start flowing over a sodded area, the upper edge of the sod strips shall be turned into the soil below the adjacent area and a layer of compacted earth placed over this juncture to conduct the water over the edge of the sod.

J. In ditches and on slope areas, stake each strip of sod securely with at least 1 wood stake for each 2 square feet of sod. Stakes shall be 2" by 1" with a length of 8" to 12". Drive stakes flush with the top of the sod, with the long face parallel to the slope contour.

3.9 MAINTENANCE

A. Maintenance includes watering, weeding, cleanup, edging and repair of depressions, washouts or gullies.

B. Those areas which do not show a prompt catch or grass within 14 days of seeding or sodding shall be reseeded or resodded until complete grass catch occurs.

C. Mow sod in the field to a height of not more than 2-1/2" within 5 days prior to lifting.

D. Cut sod to a depth equal to the growth of the fibrous roots, but in no case less than 1-1/2", exclusive of grass and thatch. Do not cut sod when the ground temperature is below 32 degrees F.

3.10 SEEDING RESTORATION SCHEDULE

A. Reference the Erosion and Sedimentation Control Plan Details for Seed Mixtures.
1. Unless lesser rate indicated by soils test.

END OF SECTION

DIVISION 33 – UTILITIES

SECTION 330513 – MANHOLES AND STRUCTURES

PART 1 - GENERAL

1.1 RELATED REFERENCES

A. Drawings and general provisions of this Contract including General and Supplementary Conditions and Division 01 specification sections apply to this section.

B. Related Sections:
1. Section 014000 - Quality Control
2. Section 312333 – Trenching, Backfilling and Compacting

1.2 DESCRIPTION OF WORK

A. The Work within this section includes, but is not limited to, the furnishing of all equipment, labor, materials, and performing all operations necessary to construct and install precast reinforced concrete round manholes including steps and frames and covers, as well as precast reinforced concrete air release valve vaults at the locations shown on the drawings or as directed by the ENGINEER, in accordance with the specifications, applicable drawings and Contract Documents.

1.3 QUALITY ASSURANCE

A. Referenced standards shall be the following:
1. Pennsylvania Department of Transportation (PennDOT) Publication 408, Specifications and its revisions.
2. American Society for Testing and Materials (ASTM).
3. American Association of State Highway Transportation Officials (AASHTO).

1.4 SUBMITTALS

A. Certificates: CONTRACTOR shall submit three (3) copies of each manufacturer's certification and PennDOT form CS-4171 certifying that the materials meet or exceed specification requirements.

B. Shop Drawings: Submit detail shop drawings of vaults, manholes, frames and covers, manhole steps, manhole joint sealing material, and flexible watertight gaskets prior to the start of work for approval in accordance with Section 013300.

PART 2 - MATERIALS

2.1 GENERAL

A. Materials for construction of manholes and other precast structures shall be new and unused and shall conform to the following.
   1. Precast Reinforced Concrete Manhole Bases, Risers, Cones, Flat Slab Tops, or Valve Vaults:
      a. Concrete and steel reinforcement used in the manufacture of precast manhole bases, risers, cones, flat slab tops, and valve vaults shall conform to ASTM C478 (latest revision). Type IL with sulfate resistance (Fly ash) or Type II cement shall be used in the construction of all manhole components.
   2. Precast structures shall conform to the design and dimensions shown on the detail drawings. Manhole cone sections shall be eccentric unless specified otherwise in the Plan Drawings.
   3. Provide ¾-inch diameter, threaded inserts for the frame hold down bolts. The inserts shall be cast into the top sections at the manufacturer's plant. Coordinate locations of inserts between the manhole manufacturer and the frame and cover manufacturer.
   4. Thru-wall lifting holes are not permitted. Provide factory installed lifting keys or lugs cast integrally in manhole components.
   5. Concrete: Composition and compressive strength conforming to ASTM C478 in manhole components and increase compressive strength to 4000 psi (at 28 days) in precast bases.
      a. Openings in precast concrete manholes and other structures to accommodate the connection of piping shall be custom preformed for each manhole or structure at the time of manufacture. Openings for connection of the piping shall be of the size and shape required for the particular type of seal provided.
      b. All precast concrete manholes and structures shall be designed to accommodate AASHTO highway load class HS-20
      c. The tops of the precast bases shall be accurately formed to receive the tongue of the bottom precast concrete manhole section of the wall.
      d. Precast top sections shall have hold down bolt inserts factory cast in the top section. Each top shall have four (4) three quarter (3/4) inch threaded inserts or slotted inserts to accommodate manhole frame hold down bolts. Insert types designed for an ultimate load in tension of 12,500 pounds. Coordinate insert locations in the top section to match the bolt hole locations on the manhole frame. All inserts shall be factory plugged before shipping.
   6. Monolithic Poured-In-Place Concrete Bases:
      a. Monolithic poured-in-place concrete bases shall be of the design dimensions indicated on the Detail Drawings.
      b. Portland cement: ASTM C150 Type IL with or Type II, both with Moderate Sulfate Resistance.
      c. Concrete used for poured-in-place manhole bases shall be of a 4,000 psi mix design.
      d. Consistency: The concrete shall be of uniform consistency. The maximum allowable slump shall be 2 inches.
         1) This strength requirement shall be verified by tests. At least one test shall be made once a day or one test per structure. A test shall consist of at least two cylinders whose 28-day compressive strengths shall be determined by an approved laboratory.
   7. Concrete used for channels inside precast manhole bases shall be of a 3,500 psi mix design with a 5/8” diameter maximum allowable aggregate size.

a. Consistency: The mixed concrete shall be of uniform consistency. The maximum allowable slump shall be 1 inch.

8. Steel Reinforcement:
   a. Steel reinforcement used in the manufacture of precast concrete manhole bases, precast riser and top sections, and precast vault base, top and sides shall conform to the requirements specified in Section 6 of ASTM C478.
9. Pipe Openings and Seals:
   a. Openings shall be pre-formed during manufacturing in each base and Riser section requiring a piped opening. Each opening shall accommodate the type of pipe and pipe seal required.
   b. Pipe opening seals shall meet the requirements specified in ASTM C923.
   c. Pipe opening seals integrally cast with holes for pipe in precast concrete manhole walls shall be all-rubber composition, flexible, pliable, and provide up to 15 degrees lateral, diagonal, or vertical pipe deflection. Gaskets shall be leak proof tested to 20 psi., and shall meet or exceed rubber quality standards of ASTM C-443.
   d. Pipe opening seals not cast with holes for pipe shall be pliable and permit deflection. A strong rubber coated steel center compression ring and a long rubber sleeve with a deep grove secured stainless steel clamp shall be used to create a positive seal.
   e. Rubber adapter ring for use on HDPE pipe in poured-in-place manhole bases shall be recommended by the manufacturer.
   f. Manhole and vault adapters shall be provided for all HDPE pipe in cut-in pipe openings and shall be recommended by the pipe manufacturer.
10. Coatings - Exterior
   a. All exterior surfaces shall be coated with dampproofing. Dampproofing shall be coal tar waterproofing pitch; Pro-Mastic 900 by Pro-Guard Coatings; Hydrocide 648 by Sonneborn Building Products; Dehydratine 4 by A.C. Horn Inc; Meadows Trowel Mastic (Type 3) or approved equal.
11. Coatings – Interior (Hydrogen Sulfide Corrosion Protection)
   a. New manholes with an internal drop of less than 2 feet shall have a white epoxy coating (Amerlock ® 2/SIGMACOVERTM 2 by PPG Protective & Marine Coatings or approved equal) applied to all interior surfaces at the manhole manufacturer's facility before delivery to the site. Surface preparation and application shall be as recommended by coating manufacturer.
   b. New manholes with a drop of 2 feet or greater or force main terminal manholes shall have one of the following linears:
      1) A High-Density Polyethylene (HDPE) liner to provide an impermeable lining on the interior concrete surfaces shall be AGRU Sure Grip HDPE of polypropylene random copolymer as furnished and installed by Terre Hill Concrete Products, Terre Hill, PA 175891, (717) 445-3100. The Sure Grip liner shall have a minimum thickness of 2-mm (0.0787-inches). The minimum anchor stud density shall be 39 studs per square foot. The anchoring studs shall not be welded or mechanically attached to the liner. All joints shall be sealed by thermal welding performed by AGRU certified welders. The interior surfaces to be protected shall include the wall, ceiling, pipe entries and structure chimney.
      2) A Polyvinyl Chloride (PVC) resin liner to provide an impermeable lining on the interior concrete surfaces shall be Dura Plate 100 as manufactured by A-Lok Products, Inc. Tullytown, PA 19077, (215) 547-3366. The Dura Plate liner shall have a minimum thickness of 0.065-inches (1.65-mm). The PVC liner, channel joints, H-joints, and corner joints shall be manufactured from PVC and shall be white in color. A combination of standing ribs and dovetails

shall be used to secure the liner panels to the wall of the structure and shall be spaced a maximum of 6-inches apart. Liner panels for 48” through 60” diameter manholes shall be a minimum of 0.50-inches high and shall be 0.75-inches high for 72” and larger diameter manholes. Liner panels shall be formed to the correct radius and have a PVC return into the joint of 0.50-inch. The fabricated liner panels shall be joined together by a slotted strip of EPDM rubber meeting the manufacturer’s specifications. Sections of lined concrete structure shall be joined together by an approved butyl rubber strip as manufactured by A-Lok Products, Inc., MT-329, designed to produce sufficient squeeze-out between PVC returns. Manhole steps, if required, shall be polypropylene drive-in step. Pipe penetrations though the wall shall be afforded protection by applying 0.125-inch cementitious corrosion resistant material, Forsroc Epoxy Liner, to the unlined exposed areas within the openings and shall overlap the liner wall a minimum of 1.50-inches. The manhole chimney shall be protected by installing a telescoping PVC connector, Water-Lok, as manufactured by A-Lok. The interior surfaces to be protected shall include the wall, ceiling, pipe entries, and structure chimney.

3) Manholes to receive a PVC or HDPE liner shall also have a fiberglass reinforced plastic (FRP)-lined base. The FRP base liner shall be by GU International. The liner shall be of one-piece construction of unlayered, homogenous composite. Minimum thickness shall be 0.12" – 0.20" (3 mm – 5 mm) and shall be in lengths and nominal inside diameters corresponding to the precast concrete base section. The prefabricated FRP base liner shall include full flow channels with side walls to the crown of the pipe; inner surface of the bench shall have an antiskid pattern; watertight gasketed pipe bell connections of FRP/PVC boot hole sleeves to suit specific pipe types, grade and alignment, shall be monolithically attached to prefabricated FRP base liners to extend to the outside profile of the precast concrete structure. The outer surface of the liner shall be aggregatecoated and shall have steel spirals/lattice bonded to the FRP to ensure adequate anchoring to concrete base sections to pass vacuum test with 10" of negative pressure.

12. Frame Hold Down Bolts:
    a. Bolts, nuts, and washers shall be stainless steel in accordance with ASTM A307 and ASTM A276.
13. Mark date of manufacture, name and trademark of manufacturer on the inside of each precast section.
14. Prevent flotation, with ground water level at finished ground surface, by dead weight of structure and soil load directly above structure. Do not consider skin friction, soil friction, or weight of equipment in structure. Use a soil weight of 130 pcf. The factor of safety against flotation shall not exceed 1.15. Provide flotation calculations for review.

2.2 JOINT SEALING MATERIAL

A. Joints between manhole and precast vault sections shall be provided with double preformed plastic joint sealing material such as Rubber-NECK, or approved equivalent. The chemical composition of the sealer shall be as follows: Bitumen, ASTM D477; Inert Ash Material, AASHTO T11142 (1974); Volatile Matter, ASTM D667 (1973).

2.3 FLEXIBLE WATERTIGHT GASKETS

A. Bases shall have flexible watertight gaskets at the point of entry of sewer pipe into the manhole. The rubber materials shall conform to ASTM C443. The gaskets shall be cast into the manhole base to become an integral part of the concrete. The gaskets shall be Presswedge II as manufactured by Press-Seal Gasket Corporation, Dura-Seal II as supplied by Terre Hill Concrete Products, or equivalent.

B. Cutting of openings in precast manholes and vaults in the field will only be permitted where authorized by the ENGINEER, and these openings shall be of proper size as required for the installation of a gasket type waterstop. Non-shrink grout shall be tightly placed into the annular space from both the inside and outside of the wall in such a manner as to completely fill the annular space and provide a watertight installation.

2.4 STANDARD FRAME AND COVER

A. Manhole frame and cover shall be heavy duty type, designed for AASHTO Highway Loading class HS-25 with a 24” or, of cast iron, equal in d design to Product Number 00112014 as manufactured by East Jordan Iron Works, Inc., East Jordan, MI, machined and having the words “SANITARY SEWER” cast approximately in the center of the cover.

B. Frames shall be drilled or cast with holes for anchor bolts. All manhole cover frames shall be securely attached to the manhole by use of anchor bolts.

C. The joint between the frame and the precast manhole section shall be provided with preformed plastic joint sealing material and shall be watertight. No mortar joints will be permitted.

2.5 MANHOLE INSERTS

A. PVC inserts shall be standard bowl type with vent holes and strap, as manufactured by Parsons Environmental Products of Reading PA, or approved equal.

2.6 MANHOLE STEPS

A. Manhole steps shall be composed of a ½” Grade 60, ASTM A615 steel reinforcing bar completely encapsulated in Grade 49108, ASTM D2146 polypropylene copolymer compound, as manufactured by M.A. Industries, Inc., or equal.

B. The Authority reserves the right to have steps tested according to the latest revision of ASTM Specification C-478 at the Contractor’s cost.

C. Manhole steps shall be position in the manhole in such a manner to permit easy access to the manhole and not conflict with either influent or effluent lines. The first step shall be no further than 24-inches from the top of the manhole.

2.7 MANHOLE GRADE RINGS

A. Concrete manhole grade rings for leveling units shall be full circle and shall be manufactured as per ASTM C-478 and shall be as thick as necessary to provide the required grade adjustment. Each grade ring shall have two holes cast therein at the manufacturer's plant for the manhole frame hold down bolts. Joint material between grade rings shall be as specified in Joint Sealing Material.

B. Rubber Grade Rings:
   1. Rubber grade rings (rubber adjustment riser) for leveling units shall comply with the following:
      a. Density:
         1) As specified in ASTM C 642-90.
      b. Durometer Hardness:
         1) As specified in ASTM D 2240.
      c. Compression:
         1) As specified in ASTM D 575.
      d. Compression Set:
         1) As specified in ASTM D 395.
      e. Freeze and Thaw:
         1) As specified in ASTM C 672-91.
      f. Coefficient of Thermal Expansion:
         1) As specified in ASTM C 5314-85.
      g. Weathering (70 hours at 70°C):
         1) As specified in ASTM D 573-88.
   2. Rubber grade rings shall only be used in paved areas.
   3. Tapered rubber grade rings shall be used to accommodate sloped paved surfaces.

C. Chemical Grout:
   1. Cement grout shall be non-shrink non-metallic.
   2. Use Type I cement where grout is not in contact with sewage.
   3. Use Type II (Sulfate Resistant) cement where grout is in contact with sewage.

D. Waterproofing mortar:
   1. Material composition meeting the requirements of ASTM C270, Type M with waterproofing admixture included.
   2. Apply in accordance with manufacturer’s instructions.

E. Epoxy Bonding Compound
   1. Provide a high-modulus, low viscosity, moisture insensitive epoxy adhesive having the following characteristics.
      a. Mix Ratio: 100 percent solids, two components; mixed one part by volume component B to two parts by volume component B.
      b. Ultimate Compressive Strength: 13,000 psi after cure at 73° F and 50 percent relative humidity determined in accordance with ASTM D695.

2.8 INSPECTION

A. Field Inspection: All pipe and appurtenances shall be installed and tested for defects in material and/or workmanship in the manner specified and in the presence of, and as approved by, the ENGINEER or OWNER.

2.9 HANDLING OF MATERIAL

A. Replacement of Damaged Material: The CONTRACTOR shall replace, at his own expense, all material furnished by him and found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all materials and labor required for replacement of installed material. Any material furnished by the OWNER that becomes damaged after acceptance by the CONTRACTOR shall be replaced by the CONTRACTOR at his own expense.

B. Responsibility of Safe Storage: The CONTRACTOR shall be responsible for the safe storage of material furnished by or to him and accepted by him, and intended for the Work until it has been incorporated in the completed Project. The interior of all pipe, fittings, and other accessories shall be kept free from dirt and foreign matter at all times. All equipment and materials subject to damage from freezing shall be drained and stored in a manner that will protect them.

C. Hauling: All materials furnished by the CONTRACTOR shall be delivered and distributed at the site by the CONTRACTOR. All materials furnished by the OWNER shall be picked up by the CONTRACTOR at points designated by the OWNER and hauled to and distributed at the site.

D. Pipe, fittings, items of equipment, and other materials of construction shall be loaded and unloaded by lifting with hoists or skidding to avoid shock or damage. Under no circumstances shall such materials be dropped. Materials handled on skidways shall not be skidded or rolled against materials already on the ground.

E. At Site of Work: In distributing the material at the site of the Work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench, or as otherwise directed by the ENGINEER. Under no circumstances should lawns, grass plots, or other private property be used for this purpose without the consent of the property owner.

PART 3 - CONSTRUCTION

3.1 GENERAL

A. Manholes and vaults shall, in all cases, be fully and completely built and fitted with their frames and covers as the Work progresses. Manholes and vaults shall be constructed in accordance with the following.
   1. Excavation and Backfill: Excavation and backfill shall conform to the applicable requirements of Section 312333 and to the following:
      a. Excavations for manholes shall be made to a vertical plane 1 foot outside the walls of the manhole. Rigid type pavement if encountered shall be cut to a rectangular shape whose sides do not exceed more than 2 feet of the diameter of the manhole base.

b. Spaces outside the manhole shall be backfilled with acceptable material in uniform layers not exceeding 4 inches in depth.

B. Precast Concrete Bases: All precast concrete bases shall be installed on a layer of crushed stone which shall have a minimum depth of 6 inches. The crushed stone shall conform to the quality and grading requirements specified in Section 703.3 of PennDOT Publication 408, Specifications for 1B, Type C crushed stone aggregate.

C. Where rubber gasket pipe seals used for connecting pipe sewer piping to precast concrete bases are of a type in which an annular space remains on the interior and exterior of the wall of the base after the pipe connection has been made, these annular spaces shall be completely filled with preformed plastic sealing compound. The sealing compound shall be tightly caulked into the annular spaces in such a manner as to completely fill the annular spaces and provide a completely watertight installation. The sealing compound shall be troweled smooth at the inside face of the manhole base.

D. Concrete Channel Fill: The concrete channel fill shall be poured in the field for all manhole bases. Inverts shall be formed directly in the concrete channel fill of the manhole base, and shall be smooth (steel trowel finish) and accurately shaped to a semi-circular bottom conforming to the inside of the adjacent sewer sections. Changes in size and grade shall be made gradually. Changes in the direction of the sewer and entering branches shall have a true curve of as large a radius as the size of the manhole will permit. Steep slopes outside the invert channels shall be avoided.

E. CONTRACTOR may use a precast invert base. CONTRACTOR shall notify ENGINEER of their intent to use the precast invert base prior to submitting the required shop drawings.

F. Structure Walls: All precast reinforced concrete riser and top sections necessary to build a completed manhole or vault shall be furnished and the different sections shall fit together readily to permit effective jointing.

G. Rubber gasket joints between adjacent sections shall be carefully made in accordance with the written instructions of the manufacturer of the precast concrete manhole sections.

H. Preformed plastic sealing compound joints between adjacent sections shall be carefully made in accordance with written instructions of the manufacturer of the preformed plastic sealing compound. After the joints have been made, the preformed plastic sealing compound shall be troweled smooth across the joint on the inside of the structure wall.

I. Pipe connections to structure walls shall be made in the same manner as specified hereinbefore for pipe connections to precast manhole bases.

J. Frames and Covers: Where required, final adjustment of frame to elevation shall be made by precast concrete manhole grade rings. All joints located between the bottom of the frame and the top manhole section shall have Joint Sealing Material. The interior face of this area shall receive a ½ inch thick troweled mortar finish. Frames for all manholes shall be bolted to the manhole as shown on the detail drawings. Bolts, nuts and washers shall be of steel and conform to ASTM A307. Bolts shall have sufficient number of proper-sized threads for installation thereof in the insert provided in the top manhole section. The bolts shall be of such length and be provided with a sufficient number of threads above the top of the frame to properly tighten the nuts thereon.

3.2 ACCEPTANCE TESTS

A. General: Test each manhole constructed in the Project by the method specified herein. If the manhole is constructed on an existing sewer where sewage flow must be maintained, the test will be waived. CONTRACTOR shall notify ENGINEER 24 hours in advance of testing for scheduling. Conduct tests in presence of and to the complete satisfaction of the ENGINEER. Should a manhole not satisfactorily pass testing, discontinue manhole construction in the Project until that manhole does test satisfactorily. Provide tools, materials (including water), equipment and instruments necessary to conduct the manhole testing specified herein.

B. Vacuum Test:

1. Vacuum Testing Equipment: Use vacuum apparatus equipped with necessary piping, control valves and gauges to control air removal rate from the manhole and to monitor vacuum. Provide an extra vacuum gauge of known accuracy to frequently check testing equipment and apparatus. Vacuum testing equipment and associated testing apparatus are subject to ENGINEER'S approval. Provide seal plate with vacuum piping connections for inserting in manhole frame.
2. Prior to testing, clean manholes thoroughly and seal openings, both to the complete satisfaction of the ENGINEER. Seal openings using properly sized plugs. Perform testing with frames installed. Include the joint between the manhole and manhole frame in the test. The CONTRACTOR may elect to make a test for his own purposes prior to backfilling. However, conduct tests of the manholes for acceptance only after backfilling has been completed.
3. Vacuum Test Procedure: Perform vacuum testing in accordance with the testing equipment manufacturer's written instruction. Determine the time (in seconds) for the manhole to be tested from the following table:

Manhole Depth (Feet)	**Manhole Internal Diameter (Inches)**											
	30	33	36	42	48	54	60	66	72	84	96	120
	Manhole Test Time (Seconds)											
8	11	12	14	17	20	23	26	29	33	38	44	56
10	14	15	18	21	25	29	33	36	41	47	55	70
12	17	18	21	25	30	35	39	43	49	57	65	83
14	20	21	25	30	35	41	46	51	57	67	77	98
16	22	24	28	34	40	46	52	58	67	76	88	112
18	25	27	32	38	45	52	59	65	73	85	99	126
20	28	30	35	42	50	57	65	72	81	95	109	139

4. When the air pressure has stabilized and is at or below the starting test vacuum of 10-inches of mercury, commence the test by allowing the gauge pressure to drop to 9-inches of mercury, at which point the recording is initiated. Record the drop in vacuum for the test period.
5. The manhole shall pass the test if the time for the vacuum reading to drop from 10-inches to 9-inches of mercury meets or exceeds the values indicated in the table.
6. Repair and Retest: Determine source or sources of leaks in manholes failing acceptance limits. Repair or replace defective materials and workmanship, as is the case, and conduct additional manhole acceptance tests and such subsequent repairs and retesting as required until manholes meet test requirements. Materials and methods used to make manhole repairs shall meet with ENGINEER'S approval prior to use. Make repairs, replacements and retests at no increase in Contract price.

7. Acceptance: Observations of successful testing of manholes by the ENGINEER does not constitute acceptance of the system or any portion thereof. Upon completion of any determined portion of a total system, and successful testing thereof, the ENGINEER may recommend final acceptance by the OWNER.
8. Only upon final inspection by the OWNER or ENGINEER, and upon written acceptance for the same, will the system or portion thereof be considered substantially completed. Upon such acceptance, the warranty period as specified for the manholes will commence.

END OF SECTION

DIVISION 33 - UTILITIES

SECTION 333100 – SANITARY UTILITY PIPING AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED REFERENCES

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

B. Related Sections:
1. Section 312333 - Trench Excavation and Backfill.
2. Section 330513 – Manholes.

1.2 DESCRIPTION OF WORK

A. The Work within this section includes, but is not limited to, the furnishing of all equipment, labor and materials, and performing all operations to install the force mains and appurtenances and furnish all tests required in accordance with the specifications, applicable drawings and Contract Documents.

1.3 QUALITY ASSURANCE

A. Referenced standards should be the following:
1. American Association of State Highway and Transportation Officials (AASHTO)
2. American National Standards Institute (ANSI)
3. American Society for Testing and Materials (ASTM)
4. American Water Works Association (AWWA).

1.4 SUBMITTALS

A. Certificates: CONTRACTOR should submit three copies of each manufacturer's certification attesting that the materials specified herein meet or exceed specification requirements.

B. Shop Drawings: Manufacturer's descriptive and technical product data for pressure pipe and fittings should be submitted prior to the start of Work for approval in accordance with Section 01330 (Submittals).

PART 2 - MATERIALS

2.1 POLYETHYLENE (HDPE) SEWER FORCE MAIN PIPE & FITTINGS

A. Standards
1. References to ASTM, AWWA, and ANSI Specifications imply to latest edition.

B. General
1. All HDPE pipe and fittings shall be manufactured in strict accordance with ASTM F714, AWWA C906, and shall be from a single manufacturer who is full experienced, reputable and qualified in the manufacturing of the polyethylene pipe and fittings to be furnished.
2. Quality Control/Workmanship: All pipe and fittings shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, blisters, dents, or other defects. The piping and fittings shall be uniform in color, opacity, density, and other physical properties as commercially practical.
3. Contractor shall account for thermal expansion/contraction during installation.

C. Material
1. HDPE pipe shall be made from HDPE material having a material designation code of PE 4710 or greater. The material shall meet the requirements of ASTM D3350 and shall have a minimum cell classification of 445574C.

D. Marking
1. Pipe shall be continuously or intermittently marked at intervals not exceeding 5 feet with the manufacturer’s name or trademark, nominal size, material designation (PE4710), dimension ratio (DR), pressure class, and applicable standard (AWWA C906). Markings shall include sufficient information for product traceability. A color coded strip(s) shall be marked along the entire length of the pipe.

E. Pressure Class/DR
1. Pipe shall be of nominal dimensions/thickness, and shall conform to the dimension requirements of the DIPS Sizing System (ASTM F714/AWWA C906).
    a. HPDE Forcemain 4” and greater shall be DR-17, rated for a minimum of 125 PSI.
    b. HDPE Forcemain less than 4” shall be DR-11, rated for a minimum of 200 PSI.

F. Joints
1. The pipe shall be joined with butt, heat fusion joints. All joints shall be made in strict compliance with the manufacturer’s recommendations and ASTM 2657. Where required, flange connections, mechanical joint connections and butt connections using bolted mechanical couplers shall be provided from a pipe stub with a polyethylene and steel stiffener. Flanged connections shall be provided from a pipe stub and a steel back-up flanged. Back-up flanges shall be primed and painted in a corrosion protected paint recommended and supplied by the manufacturer. All bolts nuts and hardware shall be type 316 stainless steel.
2. Joining of pipe by heat fusion shall be done in accordance with ASTM D2657.

G. Tracer Wire
1. Provide #12 AWG solid copper tracer wire, insulated, installed continuously along the pipe with access points at all valves and structures. HDPE jacket thickness 30 mil.
2. Tracer wire shall be installed as a continuous conductor without splices between access points. Should a splice be necessary, it shall be made using waterproof, direct-bury rated connectors.
3. Insulator shall be insulated, high molecular weight polyethylene (HMWPE) or equivalent, rated for direct burial.
4. Tracer wire continuity shall be tested after installation and prior to final acceptance.
5. Installation shall allow for continuous electronic tracing of the pipeline.

H. Detectable Warning Tape
1. Provide detectable warning tape above all buried forcemains at the depth specified in the plan drawing details.
2. Warning tape shall be detectable type, consisting of polyethylene plastic tape with an embedded metallic foil or conductive element suitable for electronic detection. Tape shall be resistant to acids, alkalis, and other corrosive soil conditions.
3. Dimensions
    a. Tape shall be minimum 6 inches wide
    b. Tape shall be minimum 4 mil thickness
    c. Manufactured for direct burial applications.
4. Tap shall be green for sewer and shall be continuously printed with “CAUTION – BURIED FORCE MAIN BELOW”
5. Lettering shall be permanent and not subject to fading or deterioration.
6. Tape shall be installed continuously without breaks for the full length of the pipeline.

I. HDPE Fittings
1. General
    a. Reference Section 3.0 of this Specification for Joining Method requirements.
    b. HDPE fittings shall be pressure rated to match the pipe DR pressure rating. All fittings shall be molded or fabricated by the same manufacturer as the pipe.
    c. For pipe diameters 4” and larger, pipe shall be joined using butt heat fusion.
    d. Electrofusion may be used for all diameters only at tie-ins, repairs, or where butt fusion is not feasible, subject to Engineer approval.
    e. Adhesives and solvent cements shall not be permitted.
2. Butt and Socket Fusion Fittings
    a. Fittings shall be made of HDPE material with a minimum material designation code of PE 4710 (or greater if necessary for HDPE pipe exceeding 4” in diameter) and with a minimum Cell Classification as specified above.
    b. Butt Fusion Fittings shall meet the requirements of ASTM D3261.
    c. Socket fittings shall meet ASTM D2683
    d. Molded and fabricated fittings shall have a pressure rating equal to the pipe unless otherwise specified on the Contract Drawings.
    e. Markings for molded fittings shall comply with the requirements of ASTM D3261. Fabricated fittings shall be marked in accordance with ASTM F2206.
3. Electrofusion Fittings:
    a. Fittings shall be made of HDPE material with a material designation code of PE 4710 (or greater if necessary for HDPE pipe exceeding 4” in diameter) and with a minimum Cell Classification as specified above.
    b. Electrofusion Fittings shall have a manufacturing standard of ASTM F1055.
    c. Fittings shall have a pressure rating equal to the pipe.

d. All electrofusion fittings shall be suitable for use as pressure conduits, and have nominal burst values of four times the Working Pressure Rating (WPR) of the fitting
e. Markings shall be according to ASTM F1055.

4. HDPE Mechanical Joint (MJ) Adapters:
   a. MJ assembly shall consist of HDPE anchor fitting, rubber gasket, extra-length high strength corrosion resistant low-alloy steel T-bolts, and heavy body ductile iron gland ring.
   b. MJ adapters shall have a material designation code of PE 4710 (or greater if necessary for HDPE pipe exceeding 4" in diameter) and with a minimum Cell Classification as specified above.
   c. MJ Adapters shall be made to ASTM D3261 or if machined, must meet the requirements of ASTM F2206.
   d. MJ adapters shall have a pressure rating equal to the pipe.
   e. Markings for molded or machined MJ Adapters shall be per ASTM D3261
   f. Bolts and nuts shall be painted with bituminous coating after installation.
5. HDPE Flanged Adapters:
   a. Flanged adapters shall have a material designation code of PE 4710 (or greater if necessary for HDPE pipe exceeding 4" in diameter) and with a minimum Cell Classification as specified above.
   b. Provide convoluted ductile iron bolt ring to meet ASME/ANSI B16.5, B16.47.
   c. Flanged adapters shall be made to ASTM D3261 or if machined, must meet the requirements of ASTM F2206.
   d. Flanged adapters shall have a pressure rating equal to the pipe.
   e. Markings for molded or machined flange adapters shall be per ASTM D3261.
   f. The bolts for flanged joints shall be a minimum ASTM A193-B8M, Class 1; 316 stainless steel.

2.2 PVC FORCEMAIN PIPE AND FITTINGS (LIMITED USE)

A. The use of PVC forcemain piping on this project is limited to the forcemain interconnection areas. Reference Plan Drawings.

B. Standards
   1. PVC pipe shall conform to AWWA C900.

C. Materials
   1. Pipe shall be PVC pressure pipe (SDR-21), minimum pressure class 200 psi, with integral bell and spigot joints.

D. Joints
   1. Joints shall be rubber gasket push-on type, conforming to ASTM D3139, with gaskets meeting ASTM F477.
   2. Joint restraints shall be provided as detailed in the plan drawings, and shall be rated for the full pressure of the pipeline and shall be specifically designed for use with PVC pipe.

E. Fittings
   1. Fittings shall be ductile iron, mechanical joint, conforming to AWWA C110 or C153, unless otherwise noted.

F. Marking
1. Pipe shall be clearly marked with manufacturer's name, size, DR rating, pressure class, and applicable standard.

G. Provide Tracer Wire and Detectable Warning Table as specified in Paragraph 2.1.

2.3 HDPE LOW PRESSURE SANITARY SEWER SERVICE LATERALS

A. General
1. This section includes HDPE low pressure sanitary sewer service laterals extending from the force main to the property line or as shown on the Drawings.
2. All HDPE pipe and fittings shall conform to the requirements of Section 2.1 – Polyethylene (HDPE) Sewer Force Main Pipe & Fittings unless modified herein.

B. Materials
1. Service lateral piping shall be:
   a. 1.5-inch HDPE, PE4710. If an existing customer lateral is field verified as a different diameter, contractor shall match existing diameter with new lateral.
   b. DR-11, minimum pressure rating 200 psi.
2. Pipe shall meet:
   a. ASTM D3350
   b. ASTM F714
   c. AWWA C906
3. Piping shall be DIPS or CTS as shown on the Drawings and compatible with specified fittings and valves.

C. Fittings and Connections:
1. Fittings shall conform to applicable portions of Section 2.1
2. Acceptable joining methods for service laterals
   a. Electrofusion fittings (preferred for taps, bends, and terminations)
   b. Mechanical compression or pack-joint fittings specifically rated for HDPE
   c. Butt fusion may be used where practical but is not required for small diameter laterals
3. All fittings shall
   a. Be pressure rated equal to or greater than the pipe.
   b. Be compatible with PE4710 DR-11 pipe.
   c. Adhesives and solvent cement joints shall not be permitted.

D. Service Connection (Taps)
1. Service laterals shall connect to the force main using:
   a. Electrofusion saddles, or other approved tapping methods compatible with HDPE.
   b. Tapping fittings shall:
      1) Be rated for the pressure class of the force main
      2) Provide a fully restrained, leak-free connection.

2.4 PVC GRAVITY SANITARY SEWER PIPING

A. Type PSM polyvinyl chloride (PVC) pipe and fittings shall conform to the requirements of ASTM D 3034 with a maximum SDR of 26. Pipe and fittings shall have bell and spigot ends with O-ring rubber gasketed, compression type joints. Joints shall conform to the requirements of ASTM Specification D 3212. Reruns of reclaimed materials shall not be accepted. Unless indicated otherwise, PVC wall pipes shall be provided for all piping passing through exterior walls. Wall pipes shall have a water stop solvent-welded to the pipe. Each wall pipe shall be of the same class and type as the piping to which it is joined.

2.5 VALVES

A. Plug Valves
1. Plug valves shall be of the offset disc type, ¼ turn, non lubricated, serviceable (able to be repacked) under full line pressure and capable of sealing in both directions at the rated pressure. The disc shall be completely out of the flow path when open. Plug valves specified herein shall be by DeZurik or Valmatic.
2. All buried valves shall be open counterclockwise and be especially constructed for buried service. Exterior ferrous metal surfaces of all buried, valves shall be blast cleaned in accordance with SSPC SP 6 and given two shop coats of an approved two component coal tar epoxy paint.
3. All size plug valves shall have a minimum port area of 80 percent.
4. Valves shall be rated at minimum 175 psi WOG (water, oil, and gas) working pressure for sizes 3 in to 12 in inclusive and at minimum 150 PSI WOG working pressure for sizes 14 in and larger.
5. Plug valves shall be factory tested in accordance with the manufacturer’s standard testing procedures. Valves shall be certified by the manufacturer to be bubble-tight at the rated working pressure with zero leakage.
6. Valve bodies shall be of cast iron, 30,000 psi tensile strength, ASTM A126, Grade B, or of ductile iron, ASTM A536 and of the top entry, bolted bonnet design, cast with integral flanges conforming to the connecting piping. All exposed bolts nuts, and washers shall have type 316 stainless steel hardware.
7. The valve disc shall be cast iron ASTM A126, Grade B, or ductile iron, ASTM A536, Grade 65 45-12, be removable without removing the valve from the line and have an integral upper and lower shaft which shall have seals on the upper and lower journals to prevent entrance of solids into the journals.
8. Shaft bearings shall be permanently lubricated, rigidly backed TFE, stainless steel or bronze at both upper and lower stem journals. The operator shaft shall have easily replaceable seals, which shall be externally adjustable and repackable without removing the bonnet from the valve or shall have self-adjusting packing.
9. The valve seating surface shall provide full 360-degree seating by contact of a resilient seating material on the disc mating with welded in high nickel content overlay seating surface in the body.
10. Discs shall have a full resilient facing of neoprene or Buna N.

B. Valve Boxes (Main Line & Customer Boxes in Paved and Sidewalk Areas)
1. This section pertains to all valve boxes along the main and forcemain interconnections, as well as the customer valve boxes located in paved and sidewalk areas. Customer valve boxes in unpaved areas will be specified separately herein.

2. All buried valves shall be provided with extension-type, roadway-type valve boxes. Valves boxes shall be cast iron and shall be two-piece telescoping slide-type construction. Valve boxes shall have 5-1/4-inch shafts, shall have covers marked “SEWER”, and shall be coated inside and out with a tar or asphalt compound. Valve boxes shall be manufactured by Bingham & Taylor or Tyler Pipe, or approved equal.

C. Customer Valve Boxes (Unpaved Areas)
1. This section pertains to all customer service lateral ball valves in unpaved areas.
2. Valve Box Base:
   a. Valve box base shall be molded plastic designed to fit over standard corporation stops or ball valves.
   b. Base Shall:
      1) Provide full enclosure of valve body.
      2) Allow vertical alignment of riser pipe.
      3) Be suitable for burial in unpaved areas.
      4) Be resistant to corrosion, moisture, and soil chemicals.
      5) Have sufficient bearing area to prevent settlement into subgrade.
   c. Valve box base shall be Bingham & Taylor Model P5B64S105W, Or engineer approved equal.
3. Riser Pipe:
   a. Rise pipe shall be Schedule 40 PVC pipe.
   b. Diameter: 5-inch nominal (or match base opening as required).
   c. ASTM D1785 compliant.
   d. Riser Shall:
      1) Fit securely into valve box base.
      2) Be cut to length to match final grade.
      3) Provide continuous access from surface to valve operator.
4. Valve Box Cover:
   a. Cover shall be:
      1) Plastic valve box lid suitable for non-traffic (unpaved) areas.
      2) Sized to fit PVC riser.
   b. Lid Shall:
      1) Provide protection from debris infiltration.
      2) Be marked SEWER.

D. Combination Air Release Valves
1. All combination air release valves provided along the force main shall be 3”.
2. Combination air release valves shall be APCO ASU Combination Air Valves model SCAV for clean or wastewater service up to 150 PSI, manufactured by DeZurik or approved equal.
3. End Connection: F1 – threaded inlet (FNPT), rated for 275 PSI.
4. Body Material: T316 SS
5. Orifice Size: 5/16” Orifice; to 150 PSI.
6. Seat Seal: (NBR) Acrylonitrile-Butadiene.
7. Disc Float Material:T316 SS
8. Shaft Material: T316 SS
9. Frame Material: T316 SS
10. Weight (Approx): 106 lbs
11. Min Valve Pressure: 2 PSIG
12. Max Temperature: 180 Degrees F.
13. Max Valve Pressure: 150 PSIG.

E. Ball Valves (ARV Vaults)
1. Reference ARV vault details in plan drawings. Two SS ball valves are shown in the vault: 3" Threaded T316 SS Ball Valve (for ARV Isolation) and 6" Flanged T316 SS Ball Valve (Bypass Connection)
   a. Valves shall be suitable for corrosive sewer environments including exposure to hydrogen sulfide, moisture, and condensate.
   b. Valves shall be full-port, two-piece, or three piece ball valves.
   c. End connections shall be:
      1) 3-inch and smaller: FNPT threaded.
      2) 6-inch and larger (bypass connections) – Flanged ends conforming to ASME B16.5, Class 150.
   d. Valves shall be rated for a minimum of 150 PSI working pressure.
   e. Materials:
      1) Body and End Caps:
         a) ASTM A351 Grade CF8M (Type 316 SS)
         b) Ball: Type 316 SS, blowout-proof design
         c) Seats: Reinforced PTFE (RPTFE), or TFM PTFE, suitable for wastewater service.
         d) Seals and Packing: PTFE or equivalent corrosion-resistant materials suitable for sewer gas exposure
      2) Design Features
         a) Full-port design to prevent restriction and clogging.
         b) Quarter-turn operation.
         c) Blowout-proof stem.
         d) Adjustable stem packing.
         e) Lockable Handle
         f) Valve shall be capable of bubble-tight shutoff.
      3) Pressure and Temperature Ratings:
         a) Minimum pressure rating: 150 PSIG WOG
         b) Temperature Rating: Suitable for 0-250 degrees Fahrenheit.
      4) Corrosion Resistance
         a) All wetted and exposed components shall be T316 SS or better.
         b) Valve shall be suitable for continuous exposure to corrosive sewer atmospheres including H2S and condensate.
         c) No carbon steel components shall be permitted unless fully encapsulated and isolated from the environment.
      5) Approved Manufacturers
         a) Apollo – 76 Series (316 SS)
         b) NIBCO – S585/SS Series
         c) Milwaukee Valve – 3 piece 316 SS series
         d) Sharpe Valves
         e) Approved Equal

F. Ball Valves (Customer Service Laterals)
1. This section includes customer service ball valves for HDPE low-pressure sanitary sewer service laterals, installed in valve boxes.
2. Valves shall be curb-stop style, quarter-turn ball valves.
3. Valves shall be full-port to the lateral size.
4. Valves shall be specifically designed for buried utility service.
5. Valves shall be suitable for buried service in corrosive sewer environments, including exposure to hydrogen sulfide, moisture, and condensate.

6. Materials:
   a. Valve body shall be engineered thermoplastic, such as:
      1) Polypropylene (PP)
      2) PVC, suitable for buried sanitary sewer service.
   b. Ball
      1) Corrosion-resistant (SS or polymer).
   c. Stem:
      1) Corrosion-resistant (SS or polymer)
   d. Seats and seals:
      1) PTFE, RPTFE, or equivalent. Suitable for wastewater service.
   e. End Connections
      1) Valves shall have PE compression, pack-joint, or mechanical compression ends compatible with HDPE PE4710 service lateral pipe.
      2) Applicable DR
   f. Connections shall
      1) Provide a restrained, watertight seal.
      2) Be specifically rated for HDPE pipe (not PVC-only compression fittings)
   g. Internal stiffeners:
      1) Shall be provided where required by valve manufacturer.
      2) Shall be stainless steel or corrosion-resistant plastic.
   h. Performance Requirements:
      1) Minimum pressure rating: 150 PSIG
      2) Suitable for buried low-pressure sanitary sewer service.
      3) Valve shall provide bubble-tight shutoff.
      4) Valve shall be operable from grade using a standard curb key.

2.6 HANDLING OF MATERIAL

A. Replacement of Damaged Material: The CONTRACTOR should replace, at his own expense, all material furnished by him and found defective in manufacture or damaged in handling after delivery by the manufacturer. This should include the furnishing of all materials and labor required for replacement of installed material. Any material furnished by the OWNER that becomes damaged after acceptance by the CONTRACTOR should be replaced by the CONTRACTOR at his own expense.

B. Responsibility for Safe Storage: The CONTRACTOR should be responsible for the safe storage of material furnished by or to him and accepted by him, and intended for the Work, until it has been incorporated in the completed Project. The interior of all pipe, fittings and other accessories should be replaced by the CONTRACTOR at his own expense.

C. Hauling: All materials furnished by the CONTRACTOR should be delivered and distributed at the site by the CONTRACTOR. Materials furnished by the OWNER should be picked up by the CONTRACTOR at points designated, and hauled to, and distributed at, the site.

D. Pipe, fittings, items of equipment and other materials of construction should be loaded and unloaded by lifting with hoists or skidding to avoid shock or damage and in strict conformance with the manufacturer's recommendations. Under no circumstances should such materials be

dropped. Materials handled on skidways should not be skidded or rolled against materials already on the ground.

E. At Site of Work: In distributing the material at the site of the Work, each piece should be unloaded opposite or near the place where it is to be laid in the trench, or as otherwise directed by the ENGINEER. Under no circumstances should lawns, grass plots or other private property be used for this purpose without the consent of the property owner.

F. Care of Pipe Lining: Pipe should be handled so the lining will not be damaged. If, however, any part of the lining is damaged, the repair should be made by the CONTRACTOR at his expense in a manner satisfactory to the ENGINEER.

G. Handling of Force main Materials into Trench: Proper implements, tools and facilities satisfactory to the ENGINEER should be provided and used by the CONTRACTOR for the safe and convenient prosecution of the Work. All pipe, fittings, valves, etc. should be carefully lowered into the trench piece by piece by means of a derrick, ropes or other suitable tools or equipment, in such a manner as to prevent damage to sewer line materials, protective coatings and linings. Under no circumstances should such materials be dropped or dumped into the trench.

PART 3 - CONSTRUCTION

3.1 FORCEMAIN INSTALLATION

A. HDPE pipe shall be installed in accordance with the manufacture’s instructions and AWWA C906.

B. The contractor performing the joining shall have a minimum of five [5] years experience with the fusion equipment to be used.

C. Prior to the start of pipe installation, one test joint shall be made and tested. Test shall be done in accordance with CPChem Co. Bulletin No. 106. No joints shall be made until a successful test joint has been made.

D. Construction Control: During the installation of a force main, the pipe should be laid at a constantly increasing grade to each high point, air release manhole or point of discharge, as shown on the Contract drawings. The CONTRACTOR should provide sufficient construction control to assure that there are no sags or loss in grade in the force main which could tend to accumulate air other than at the high points shown on the drawings. Failure to comply with this requirement should necessitate the CONTRACTOR to take remedial steps to correct this situation. All such costs should be borne by the CONTRACTOR.

E. Variations: The ENGINEER reserves the right to vary the line and/or grade from that shown on the drawings for the pipe lines and manholes and to vary the location of fittings and valves when such changes may be necessary or advantageous. No claims for extra Work will be allowed for changes in location or grade except as such changes are made after trenching has been done. Payment for all variances should be in accordance with the unit pricing as indicated in the Bid Form and all excavation should be unclassified.

F. Cleaning Pipe and Fittings:

1. HDPE Pipe: Prior to fusion, pipe and fitting surfaces shall be clean, dry, and free of dirt, moisture, oil, grease, and other contaminants. Fusion surfaces shall be prepared in accordance with ASTM F2620 and the pipe or fitting manufacturer's recommendations. Scraping of the fusion surface shall be performed where required (electro fusion and saddle fusion). Solvents, wire brushes, or abrasive tools shall not be used unless specifically approved by the manufacturer.

G. Depth of Pipe: All pipe should be laid to the depth shown on the Contract drawings or a minimum of 4.0 feet from grade to the crown of pipe.

H. Laying Pipe: Every precaution should be taken to prevent foreign material from entering the pipe while the pipe is being placed in the trench. During laying operations, no debris, tools, clothing or other material should be placed in the pipe.

I. Precautions should be taken to prevent dirt from entering the joint space.

J. At times when pipe laying is not in progress, the open ends of pipe should be closed by a watertight plug or other means approved by the ENGINEER. This provision should apply during the noon hour as well as overnight. If water is in the trench, the seal should remain in place until the trench is pumped completely dry.

K. Cutting Pipe:
1. HDPE Pipe: Cutting of HDPE pipe shall be performed using tools and methods recommended by the pipe manufacturer to produce a smooth, clean, square cut perpendicular to the pipe axis. Cut ends shall be free of gouges, deep scratches, notches, or other damage that could impair joint integrity or fusion quality. Flame cutting or use of abrasive cutting tools that generate excessive heat shall not be permitted. Damaged pipe sections shall be removed and replaced at no additional cost to the Owner.

L. Permissible Deflection of Joints:
1. HDPE Pipe: Permissible joint deflection shall comply with manufacturer recommendations for HDPE pipe.

M. Unsuitable Conditions for Laying Pipe: No pipe should be laid in water or when, in the opinion of the ENGINEER, trench conditions are unsuitable.

N. Joint Fusion Method – HDPE Pipe
1. Butt Fusion:
   a. The pipe shall be joined by the butt fusion procedure outlined in ASTM F2620 or PPI TR-33.
   b. All fusion joints shall be made in compliance with the pipe or fitting manufacturer's recommendations. Fusion joints shall be made by qualified fusion technicians per PPI TN-42.
2. Saddle Fusion:
   a. Saddle fusion shall be done in accordance with ASTM F 2620 or TR-41 or the fitting manufacturer's recommendations and PPI TR-41.
   b. Saddle fusion joints shall be made by qualified fusion technicians.
   c. Qualification of the fusion technician shall be demonstrated by evidence of fusion training within the past year on the equipment to be utilized.
3. Socket Fusion

a. Molded socket fusion fittings are only to be used for joining of HDPE pipe from 1/2 inch to 4" in size. Socket fusion shall be done in accordance with ASTM F2620 or the fitting manufacturer's recommendations.
b. Socket fusion is the process of fusing pipe to pipe, or pipe to fitting by the use of a male and female end that are heated simultaneously, and pressed together so the outside wall of the male end is fused to the inside wall of the female end.
c. Qualification of the fusion technician shall be demonstrated by evidence of socket fusion training within the past year on the equipment to be utilized on the Project.

4. Electrofusion
a. Electrofusion joining shall be done in accordance with the manufacturers recommended procedure. Other sources of electrofusion joining information are ASTM F1290 and PPI TN 34.
b. The process of electrofusion requires an electric source, a transformer, commonly called an electrofusion box that has wire leads, a method to read electronically (by laser) or otherwise input the barcode of the fitting, and a fitting that is compatible with the type of electrofusion box used.
c. The electrofusion box must be capable of reading and storing the input parameters and the fusion results for later download to a record file.
d. Qualification of the fusion technician shall be demonstrated by evidence of electrofusion training within the past year on the equipment to be utilized for this project.

3.2 HDPE JOINTS

A. HDPE Pipe joints shall be made by heat fusion in accordance with ASTM F2620 and the pipe and fitting manufacturer's recommendations. Butt fusion shall be the primary joining method. Electrofusion and saddle fusion may be used where shown on the plans or where butt fusion is impractical. All HDPE joints shall be fully restrained and shall develop joint strength equal to or greater than the strength of the pipe. Mechanical joints and gasketed joints shall not be permitted on HDPE force main piping unless specifically shown on the Plans.

3.3 SETTING FITTINGS AND VALVES

A. General: Valves and fittings should be set and jointed to pipes in the manner herein before specified for cleaning, laying and jointing pipe.

B. Valve Pits: A concrete valve pit should be provided for every air release and vacuum valve meeting the requirements of the 330513 Manholes & Structures Specification. The pits should be constructed to permit valve repairs and afford protection to the valve and pipe from impact where they pass through the pit walls.

3.4 CUSTOMER VALVE BOXES (UNPAVED AREAS, LOW PRESSURE LATERALS)

A. Reference Paragraph 2.3C for product specifications for customer valve boxes in unpaved areas.

B. Install valve box base centered over valve such that:
1. Valve operating nut is accessible from surface.
2. No load from valve box is transferred to valve or piping.

C. Place base on compacted aggregate base (minimum 6 inches).

D. Install PVC Riser:
   1. Plumb and aligned vertically over valve.
   2. Cut to terminate at finished grade.
   3. Securely seated in base.

E. Install Cover:
   1. Flush with finished grade.
   2. Not more than ½" above or below grade in unpaved areas.

3.5 ANCHORAGE

A. Anchorage requirements apply to ductile iron pipe only. HDPE force mains shall be fully restrained by fused joints and shall not require thrust restraint, rodding, or harnessing.

B. For buried HDPE force mains constructed with continuous butt-fused joints and fused fittings, thrust blocks, rodding, and harnessing are not required at changes in direction. Provide thrust restrain/anchorage at all transition to non-fused piping or appurtenances)e.g. valves, vault piping, mechanical couplings, flanged connections, and pipe material transitions), and where pipeline cannot develop soil restraint (e.g., casing/sleeves, structures).

3.6 CONCRETE CRADLE AND ENCASEMENT

A. Preparation: Prior to the formation of the cradle or encasement, temporary supports consisting of solid concrete bricks or cap blocks should have minimum dimensions and should support the pipe at not more than two locations, one at the bottom of the barrel of the pipe adjacent to the shoulder of the socket and the other near the spigot end.

B. Placing: After jointing of the pipe has been completed, concrete should be uniformly poured beneath and on both sides of the pipe. Placement should be done by the use of suitable equipment. The concrete should be wet enough during placement to permit its flow, without excess prodding, to all required points around the pipe surface. The width of cradle should be such as to completely fill the trench width. In case of extremely wide trenches, concrete encasement may be confined above the top of the pipe to a narrower width, but in no case should it be less than the width of trench required for the size of pipe being used.

C. Before depositing concrete, the space within the limits of the pour should have been cleared of all debris and water. Water should not be allowed to rise adjacent to, or flow over, concrete deposited for less than 24 hours. Concrete should be protected from the direct rays of the sun and kept moist, by a method acceptable to the ENGINEER, until backfilling is begun. In no case should backfill begin within 24 hours of the time of placing and the ENGINEER should have strict control of the rate of backfilling.

D. Complete concrete encasements as detailed in the Plan Drawings.

3.7 HYDROSTATIC TESTS (LOW PRESSURE SYSTEM)

A. Field Quality Control
   1. Testing of Pressure PE Piping:
      a. Test system according to ASTM F 2164 and following:
         1) Hydrostatically test each portion of pressure piping, including valved section, at 1.5 times working pressure of piping, based on elevation of lowest point in piping corrected to elevation of test gage. Line shall be cleaned free of debris prior to testing.
         2) Initial expansion phase
            a) Slowly fill with water portion of piping to be tested, expelling air from piping at high points.
            b) Install corporation cocks at high points.
            c) Close air vents and corporation cocks after air is expelled.
            d) Raise pressure to specified test pressure.
            e) Observe joints, fittings, and valves undergoing testing
            f) Add make-up water as necessary to maintain maximum test pressure for 4 hours.
         3) Test Phase:
            a) Immediately after expansion phase, reduce test pressure by 10 psi and stop adding makeup water.
            b) Monitor pressure for 1 hour.
         4) Remove and renew cracked pipes, joints, fittings, and valves that show visible leakage.
         5) Retest after section is depressurized for 8 hours, minimum.
         6) If no visual leakage is observed and test pressure remains within 5% of the target pressure, no leakage is indicated.
      b. If testing of piping indicates leakage, locate source of leakage, make corrections, and retest until leakage is within acceptable limits.
      c. Correct visible leaks regardless of quantity of leakage.

3.8 COMMON REQUIREMENTS

A. Engineer Presence: The ENGINEER should monitor the pressure and leakage tests. The CONTRACTOR should notify the ENGINEER of the test day at least 48 hours in advance.

B. If test fails to meet test requirements, the CONTRACTOR should pay for all additional engineering personnel testing time.

C. Weather: No testing will be authorized unless air temperature is 35° Fahrenheit or higher.

D. Field Joints: All field joints of fittings and valves should be exposed and examined during pressure and leakage test.

E. Acceptance: Observation of successful testing of force mains or manholes by the ENGINEER does not constitute acceptance of the system or any portion thereof. Upon completion of any determined portion of a total system, and successful testing thereof, the ENGINEER may recommend final acceptance to the OWNER. Only upon final inspection by the OWNER or ENGINEER and upon written acceptance for same will the system or portion thereof be

considered substantially completed. Upon such acceptance, the warranty period as specified for the force main or manholes will commence.

F. If, during this final inspection, any irregularities are observed, the condition must be corrected at the CONTRACTOR'S expense prior to acceptance.

3.9 GRAVITY SEWER INSTALLATION

A. General

1. All piping shall be installed by skilled workmen and in accordance with the best standard practice for piping installation as shown on the Drawings, specified or recommended by the pipe manufacturer. Proper tools and appliances for the safe and convenient handling and installing of the pipe and fittings shall be used. Great care shall be taken to prevent any pipe coating from being damaged on the inside or outside of the pipe and fittings. All pieces shall be carefully examined for defects, and no piece shall be installed which is known to be cracked, damaged, or otherwise defective. If any defective pieces should be discovered after having been installed, it shall be removed and replaced with a sound one in a satisfactory manner by the Contractor and at his own expense. Pipe and fittings shall be thoroughly cleaned before they are installed and shall be kept clean until they are accepted in the complete work.
2. All excavation shall be made in such a manner and to such widths as will provide ample room for properly installing the pipe and permit thorough compaction of backfill around the pipe. All excavation and trenching shall be done in strict accordance with trenching and back filling specifications and all applicable parts of the OSHA Regulations, 29CFR 1926, Subpart P.
3. Enlargements of the trench shall be made as needed to give ample space for operations at pipe joints. The width of the trench shall be limited to the maximum dimensions shown on the Drawings, except where a wider trench is needed for the installation of and work within sheeting and bracing. Except where otherwise specified, excavation slopes shall be flat enough to avoid slides which will cause disturbance of the subgrade, damage to adjacent areas, or endanger the lives or safety of persons in the vicinity.
4. Hand excavation shall be employed wherever, in the opinion of the Engineer, it is necessary for the protection of existing utilities, poles, trees, pavements, or obstructions.
5. Joint deflection shall not exceed 75% of the Manufacturer’s recommended deflection. Excavation and backfilling shall conform to the requirements of Section 312333 – Trenching, Backfilling and Compacting, and as specified herein.
6. Following proper preparation of the trench subgrade, pipe and fittings shall be carefully lowered into the trench so as to prevent dirt and other foreign substances from gaining entrance into the pipe and fittings. Proper facilities shall be provided for lowering sections of pipe into trenches. Under no circumstances shall any of the materials be dropped or dumped into the trench.
7. The full length of each section of pipe shall rest solidly upon the bed of the trench, with recesses excavated to accommodate bells, couplings, joints, and fittings. Before joints are made, each pipe shall be well bedded on a solid foundation; and no pipe shall be brought into position until the preceding length has been thoroughly bedded and secured in place. Pipe that has the grade or joint disturbed after laying shall be taken up and relaid by the Contractor at his own expense. Pipe shall not be laid in water or when trench conditions are unsuitable for work.
8. Proper and suitable tools and appliances for the safe convenient handling and laying of pipe shall be used and shall in general agree with manufacturer's recommendations.

9. At the close of each work day, the end of the pipeline shall be tightly sealed with a cap or plug so that no water, dirt, or other foreign substance may enter the pipeline. This plug shall be kept in place until pipe laying is resumed.
10. Ordinarily only full lengths of pipe (as furnished by the pipe manufacturer) shall be used. Exceptions: (closure pieces at manholes and areas where joint deflection is required).

B. Preparation
1. Clean piping interior and mating surfaces of bell, spigot and gasket before laying. Maintain clean until completed work is accepted.
2. Perform trenching for sewer pipe and place pipe bedding as specified in Section 312333 – Trenching, Backfilling and Compacting.

C. Laying Gravity Sewer Pipe
1. General Requirements
   a. Lay pipe proceeding upgrade true to line and grades given. Lay bell and spigot pipe with bell end upgrade unless shown otherwise on the drawings or directed by the Engineer.
   b. Exercise care to insure that each length abuts against the next in such manner that no shoulder or unevenness of any kind occurs along inside bottom half of pipe line.
   c. Center spigot end in bell or socket end of previously laid pipe, shove tight and secure.
   d. No wedging or blocking permitted in laying pipe unless by written order of Engineer.
   e. Before joints are made, bed each section of pipe full length of barrel with recesses excavated so pipe invert forms continuous grade with invert of pipe previously laid. Do not bring succeeding pipe into position until the preceding length is embedded and securely in place.
   f. Walking or working on completed pipe line, except as necessary in tamping and backfilling, not permitted until trench is backfilled one-foot deep over top of pipes.
   g. Take up and relay pipe that is out of alignment or grade, or pipe having disturbed joints after laying.
   h. Take up and replace with new, such in-place pipe sections found to be defective. Replace at Contractor's expense.
   i. Take necessary precautions to prevent newly laid pipe from floating as a result of water accumulation in the trench; or the collapse of the pipe line from any cause. Restore or replace pipe as necessary at Contractor's expense.
   j. Bed pipe using materials specified in Section 312333 – Trenching, Backfilling and Compacting.
   k. Cut pipe using only equipment specifically designed for that purpose such as an abrasive wheel, rotary wheel cutter, a guillotine pipe saw or a milling wheel saw. The use of chisels or hand saws will not be permitted. Grind smooth cut ends and rough edges. Bevel slightly, cut end for push-on connections.
   l. Where cutting of pipe is necessary, minimum laying length shall be five (5) feet.
2. Alignment and Grade
   a. Lay and maintain all pipe at the required lines and grades as shown on the Drawings. Place fittings and valves at the required locations with joints centered, spigots forced home, and all valve stems plumb. Do not deviate from the required line and grade, except with the approval of the Engineer.
   b. Deflect pipe joints where indicated on the drawings. Deflections shall not exceed pipe manufacturer's recommended maximum allowable deflection.
   c. Do not change grade or alignment without Engineer's approval.

D. Field Quality Control for Gravity Sewer Pipe
   1. General Requirements: Conduct tests specified herein so that each pipe line installed in the Project is tested to the Engineer's satisfaction.
      a. Provide tools, materials (including water), apparatus and instruments necessary for pipe line testing.
      b. Conduct tests in the presence of and to the satisfaction of the Engineer.
   2. Alignment: After the mains have been laid and backfilled, a light will be flashed between manholes or manhole locations to determine whether the alignment of the sewer is true and whether any pipe has been displaced, broken or otherwise damaged subsequent to laying. This test will again be conducted before final acceptance of the sewer. Each section (manhole to manhole) of sewer shall show a good light circle throughout its length and any and all defects shall be corrected by the Contractor, to the satisfaction of the Engineer, before the work shall proceed and before acceptance of and/or payment therefore shall be made.
   3. Initial Section Test:
      a. To demonstrate acceptability of installed pipe materials and workmanship, construct and air test one sewer section from manhole to manhole using the pipe provided in the Contract. Pretesting such section prior to actual Initial Section Test not permitted.
         1) Conduct Initial Section Test in same manner as Line Acceptance Test specified in a following paragraph.
         2) Conduct said Initial Section Test for each size and type pipe material used in the Project prior to continued installation of same pipe.
         3) Provide pipe manufacturer's representation during laying, backfilling and testing of Initial Sections Tests.
         4) Failure of an Initial Section Test will be sufficient cause for the Engineer to reject manufacturer and supplier of pipe regardless of cause of failure.
         5) Sewer sections successfully tested as Initial Section Test will be retested under Line Acceptance Test.
         6) Include costs for above stated tests in unit or lump sum price or prices bid for the Work as no separate payment will be allowed for Initial Section Test.
   4. Line Acceptance Test – Gravity Sewers
      a. After a section of sewer is constructed between adjacent manholes, backfilled and successfully cleaned, perform a low-pressure air Line Acceptance Test in accordance with ASTM C 828 and the following:
         1) Seal and brace sewer piping at upstream and downstream manholes and at all laterals. Test plug seal before actual use by testing plugs outside the trench in one length of pipe pressurized to maximum anticipated testing pressure. Plugs shall hold without bracing and show no movement. After plug is placed in pipe and sealed, brace or protect as insurance against blow out. Protect workers from potential of plug blow out.
         2) Introduce low pressure air slowly into sealed sewer section until the internal air pressure is four psig greater than the average ground water pressure acting on the pipe, but in no case higher than 10 psig.
         3) To determine the internal air pressure for the test, add 3.5 psig to the height in feet of the ground water above the invert of the pipe divided by 2.3.

However, the test pressure should not exceed 10 psig. For example, if ground water height is 6.9': 3.5 + (6.9/2.3) = 6.5 psig

4) Allow no less than 3 minutes for air temperature and pressure to stabilize. Add air only to maintain required test pressure.
5) After the stabilization period, adjust the test pressure to the required test pressure, and disconnect the air supply. Then measure the time that is required to achieve a 1.0 psig pressure drop.
6) The line passes if the time required for a 1 psig pressure drop exceeds the value listed in the following table. Interpolate values for intermediate distances from those shown. If the time for 1 psig pressure loss is less than that reported in the table, then the line fails and shall be repaired prior to re-test.
7) For conditions not reflected in the Table (Refer to Table 1 at the end of this Section), utilize the following equation:
    a) T=0.085 * (D*K) /Q
    b) Where: T=shortest time, in seconds, allowed for the air pressure to drop 1.0 psig.
    c) K=0.000419D*L, but not less than 1.0
    d) Q=0.0015 cubic feet/minute/square feet of internal surface
    e) D=nominal pipe diameter in inches
    f) L=Length of pipe being tested in feet
8) After laterals are installed, re-test line in accordance with the above procedure if line is initially tested before the installation of laterals.
9) Where lines are live and carry flow, perform Joint Acceptance Test by testing one joint at a time as described in paragraph 4, below.
10) Joint Acceptance Test shall test one joint at a time using test apparatus such as CHERNE Joint Tester, CHERNE Industrial, Inc., or equal. Test pressure shall be as determined in paragraph 3.04.E.1.c, above. Consider joint acceptable when the pressure loss is less than one psig in one minute. Perform test after one-minute stabilization period.

END OF SECTION

Appendix A
Water Quality Management Permit

(Pending)

RETTEW
We answer to you.

Appendix B
PennDOT Highway Occupancy Permit

M-945P (6/12)

pennsylvania
DEPARTMENT OF TRANSPORTATION

Highway Occupancy Permit

Permit No.: **08120320**

Name and Address of Permittee: Upper Leacock Township Municipal Authority 161 Newport Rd Leola, PA 17540	County: Lancaster County Contact No.: (717) 299-7621 Issuing District Office: 8-0 District Contact No.: (717) 787-2522 Municipalities: Upper Leacock Township	Issue Date: 7/13/2026 Expiration Date: **7/13/2027** Application No.: 403667 Account No.: Permit Fee: $ 0.00

Immediately upon completion of the work Permittee shall notify the permit office where application was made. Subject to all the conditions, agreements, restrictions, and regulations prescribed by the Pennsylvania Department of Transportation, (see in particular 67 Pa. Code, Chapter 212, 441 and 459 and State Highway Law, 36 P.S. Section 670 - 411, 420 and 421) and subject to the plans, special conditions, or restrictions herein set forth or attached hereto. This permit shall be located at the work site and shall be available for inspection by any police officer or Department representative.

Location and Description of Work		Permit No.: **08120320**
1 of 2	State Route #: 0023 Segment(s): From 0380 To 0420 Offset(s): From 1297 To 2837	641: Install Sub-surface Sewer Facility 644: Connect Sub-surface Sewer Facility
2 of 2	State Route #: 0772 Segment(s): From 0640 To 0640 Offset(s): From 0000 To 0100	641: Install Sub-surface Sewer Facility 644: Connect Sub-surface Sewer Facility

Permit Conditions	Permit No.: **08120320**
1 of 36	2A COARSE AGGREGATE BACKFILL MATERIAL IS REQUIRED UNDER 67 PA CODE, SECTION 459.8 (G)(2) AND SECTION 703.2 OF PUBLICATION 408.
2 of 36	RETAINED SUITABLE MATERIAL BACKFILL IS AUTHORIZED OUTSIDE SHOULDERS & UNIMPROVED SHOULDERS MORE THAN 3' FROM EDGE OF PAVE AND MORE THAN 3' BELOW THE SURFACE.
3 of 36	DEPARTMENT MUST BE NOTIFIED IN WRITING TWO WEEKS IN ADVANCE OF PRE-CONSTRUCTION MEETING.
4 of 36	DEPARTMENT MUST BE NOTIFIED IN WRITING TWO WEEKS IN ADVANCE TO SCHEDULE SEMI-FINAL INSPECTION.
5 of 36	COMPLETE PERMANENT PAVEMENT RESTORATION IN ACCORDANCE WITH SECTION 459.8. EACH PATCH MUST BE PAINTED IN ACCORDANCE WITH SECTION 459.8 (L).
6 of 36	NOTIFY THE TRAFFIC MANAGEMENT CENTER (TMC) AT 717-265-7600 TWO DAYS IN ADVANCE OF ANY PROPOSED LANE OR SHOULDER RESTRICTIONS AND 15 (FIFTEEN) MINUTES PRIOR TO THE ACTUAL RESTRICTIONS AND PROVIDE THIS PERMIT NUMBER TO THE TMC OPERATOR PRIOR TO SETTING UP ANY LANE CLOSURES OR

	RESTRICTIONS, AND CALL AGAIN WHEN THE CLOSURE/RESTRICTION IS REMOVED, AND THE ROAD IS RESTORED TO NORMAL OPERATION.
7 of 36	PERMITTEE'S CONTRACTOR MUST PROVIDE PROPOSED WORK SCHEDULE 3 DAYS BEFORE START OF WORK. ALSO, PROVIDE AN EMERGENCY PHONE CONTACT NUMBER TO THE DEPARTMENT.
8 of 36	CONTACT COUNTY PERMIT INSPECTOR AT LEAST 3 WORK DAYS PRIOR TO START OF WORK AT MIFORESTER@PA.GOV OR 717-874-2709.
9 of 36	A FULL-TIME INSPECTOR WILL BE ASSIGNED WHEN WORKING WITHIN THE DEPARTMENT RIGHT OF WAY (ROW) AND OR WORK ASSOCIATED WITH WORK ZONE TRAFFIC CONTROLL (WZTC) PLAN. PERMITTEE WILL BE CHARGED FOR ALL INSPECTION COSTS INCLUDING HOURS WORKED, MILEAGE, CELL PHONE, BOARDING AND LODGING BILLED TO THE DEPARTMENT AS PER THE CONSULTANT INSPECTION AGREEMENT. AN EPS BUSINESS PARTNER ID WILL BE REQUIRED PRIOR TO THE START OF WORK FOR ELECTRONIC INVOICING THROUGH EPS. PERMITTEE SHALL ASSIGN A PERSON AUTHORIZED TO SIGN THE DAILY TIME SHEET OF INSPECTOR CLEARLY INDICATING THE HOURS WORKED AND MILEAGE ON JOB SITE. DEPARTMENT MAY STOP THE WORK / REVOKE THE PERMIT IF PERMITTEE FAILS TO PAY ALL INVOICES ON TIME OR IF PERMITTEE IS NOT IN COMFORMFANCE WITH THE APPROVED PERMIT.
10 of 36	FACILITY MAY BE PLACED IN PAVEMENT OR SHOULDER, AS PER PLANS, PROVIDED BASE AND WEARING COURSES ARE OPENED BY SAW CUT METHOD.
11 of 36	THIS PERMIT AUTHORIZES WORK ONLY IN DEPARTMENT HIGHWAY RIGHT OF WAY.
12 of 36	ALL WORK MUST BE COMPLETED PRIOR TO START OF DEPARTMENT PROJECT.
13 of 36	ALL WORK MUST BE COORDINATED WITH THE DEPARTMENT'S CONSTRUCTION PROJECT. PLEASE CONTACT: JASON KUTE AT: 717-315-2510.
14 of 36	DEPARTMENT MUST BE NOTIFIED IN WRITING UPON COMPLETION OF WORK.
15 of 36	TEMPORARY PAVEMENT RESTORATION AUTHORIZED CONSISTENT WITH SECTION 459.8 (K), FOR NO MORE THAN 30 DAYS.
16 of 36	THE PERMITTEE IS REQUIRED TO USE HOT MIX OR WARM MIX MATERIAL FOR TEMPORARY RESTORATION. COLD MIX WILL BE PERMITTED AT THE DISCRETION OF THE DEPARTMENT. PERMITTEE MUST MAINTAIN A SMOOTH PAVEMENT SURFACE SUITABLE FOR DRIVING FOR THE DURATION OF THE TEMPORARY PAVEMENT.
17 of 36	BACKFILL COMPACTION TESTING IS REQUIRED A MINIMUM ONE TEST PER LIFT DAILY. FOR OPENINGS LESS THAN OR EQUAL TO 500 TOTAL FEET IN PAVEMENT, SHOULDER OR SIDEWALK, THE PERMITTEE MAY CHOOSE THE COMPACTION TEST METHOD, PROVIDED THE TEST METHOD IS PERFORMED CONSISTENT WITH DEPARTMENT PUBLICATIONS, AND ON THE CONDITION THAT THE PERMITTEE PROVIDE THE COMPLETED CS-6 (PIPE INSTALLATION INSPECTION FORM) AND ACCOMPANYING TR-478A AND/OR TR-4276 FORMS WITHIN TWO WEEKS OF THE COMPLETION OF THE WORK REPRESENTED ON THE FORM. PENNDOT WILL NOT CLOSE-OUT THE PERMIT PRIOR TO RECEIVING THE COMPLETED FORMS.
18 of 36	CURB MUST BE INSTALLED IN ACCORDANCE WITH PENNDOT ROADWAY STANDARDS RC-64M AND RC-67M.
19 of 36	ACCESS SIGNING AND PAVEMENT MARKINGS DISTURBED BY THE PERMITTED WORK MUST BE REPLACED IN KIND.

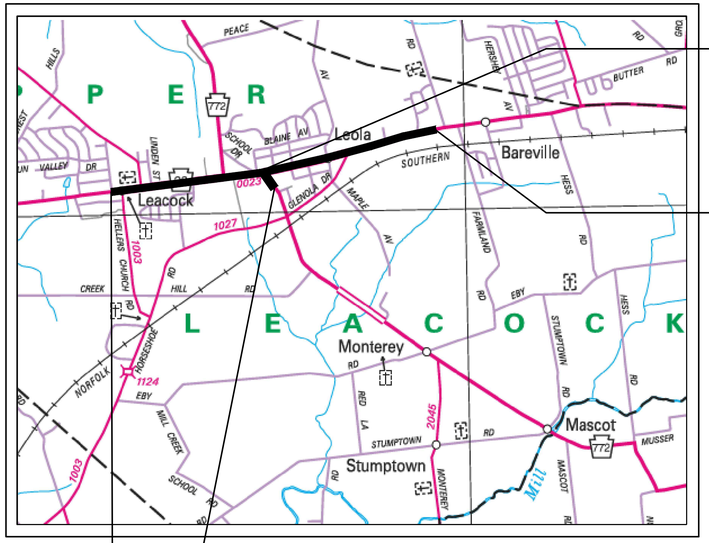
20 of 36	SIDEWALK CONSTRUCTION OR REPLACEMENT SHALL PROVIDE ACCOMMODATIONS FOR PERSONS WITH DISABILITIES CONSISTENT WITH ADA AND PENNDOT STANDARDS.
21 of 36	IT IS THE PERMITTEE'S RESPONSIBILITY TO IDENTIFY ALL PENNDOT OWNED/ OPERATED FACILITIES WITHIN THE LIMITS OF PERMITTED WORK. IF DAMAGED BY THE PERMITTED WORK, IT IS PERMITTEE'S RESPONSIBILITY TO CONTACT THE DEPARTMENT IMMEDIATELY AND RESTORE THE FACILITY TO ITS ORIGINAL CONDITION OR AS DIRECTED BY THE DEPARTMENT.
22 of 36	ALL DISTURBED AREAS OUTSIDE THE PAVEMENT OR SHOULDER SHALL BE RESTORED TO A CONDITION AT LEAST EQUAL TO THAT WHICH EXISTED BEFORE THE START OF WORK.
23 of 36	MINIMUM WORK ZONE TRAFFIC CONTROL TO BE IN ACCORDANCE WITH PUB. 213. SEE PUB 212 FOR ADDITIONAL DETAILS.
24 of 36	NO LANES MAY BE RESTRICTED BETWEEN THE HOURS OF 6:00 AM TO 9:00 AM OR BETWEEN THE HOURS OF 3:00 PM TO 6:00 PM.
25 of 36	LANE CLOSURES WILL NOT BE PERMITTED DURING THE FOLLOWING PERIODS: EASTER WEEKEND - FRIDAY 6:00AM TO TUESDAY 9:00AM; MEMORIAL DAY WEEKEND - FRIDAY 6:00AM TO TUESDAY 9:00AM; FOURTH OF JULY HOLIDAY - REQUEST INFORMATION FROM DISTRICT OR COUNTY PERMIT OFFICE; LABOR DAY WEEKEND - FRIDAY 6:00AM TO TUESDAY 9:00AM; THANKSGIVING WEEKEND -WEDNESDAY 6:00AM TO MONDAY 9:00AM; CHRISTMAS HOLIDAY-DECEMBER REQUEST INFORMATION FROM DISTRICT OR COUNTY PERMIT OFFICE; NEW YEAR'S HOLIDAY - REQUEST INFORMATION FROM DISTRICT OR COUNTY PERMIT OFFICE; PRIMARY AND GENERAL ELECTION DAYS- TUESDAY 6:00AM TO 9:00PM; THERE MAY BE ADDITIONAL TRAFFIC RESTRICTIONS FOR SPECIAL EVENTS THAT ATTRACT LARGE VOLUMES OF TRAFFIC IN THE AREA OF THE HOP.
26 of 36	PERMITTEE IS RESPONSIBLE FOR ENSURING THAT MUD, SILT AND OTHER DEBRIS IS REMOVED FROM VEHICLES AND TIRES (BY POWER WASH, ETC.) BEFORE ENTERING ONTO THE HIGHWAY.
27 of 36	CONTACT COUNTY PERMIT INSPECTOR AT LEAST 3 WORK DAYS IN ADVANCE OF PERFORMING FINAL RESTORATION.
28 of 36	INSPECTION OF FABRICATED PRODUCTS WILL BE REQUIRED BY THE DEPARTMENT. PERMITTEE WILL BE CHARGED ALL INSPECTION COSTS INCURRED BY THE DEPARTMENT. PRIOR TO FABRICATION, PERMITTEE SHALL PROVIDE TO THE DISTRICT OFFICE A COMPLETED CS-430 FORM (NOTIFICATION OF INSPECTION).
29 of 36	SHOULDERS MUST BE RESTORED IN ACCORDANCE WITH APPROPRIATE SECTION OF PUB. 408 AND ROADWAY CONSTRUCTION STANDARDS RC-25M.
30 of 36	PAVING SEASON EXTENSIONS MUST BE SUBMITTED FOR REVIEW 21 DAYS PRIOR TO THE END OF WEATHER AND SEASONAL LIMITATIONS PER PUBLICATION 408 SECTION 413.3(B). IF APPROVED, ALL ADDITIONAL PAVEMENT TESTING AND REQUIREMENTS FROM PUBLICATION 408 SECTION 413.3(B)1 ARE THE RESPONSIBILITY OF THE PERMITTEE AT NO COST TO THE DEPARTMENT. ALL LABORATORY TESTING MUST BE PERFORMED AT A THIRD PARTY ACCREDITED LABORATORY. A PREPLACEMENT MEETING MUST BE HELD 14 DAYS PRIOR TO PAVING AND IN COMPLIANCE WITH PUBLICATION 408 SECTION 413.3(A)2.

Permit Conditions	Permit No.: **08120320**
31 of 36	FULL LANE OVERLAY IS REQUIRED, AS PER REGULATION 459.8.
32 of 36	PERMITTEE MUST INFORM UPPER LEACOCK TOWNSHIP FIVE WORKING DAYS PRIOR TO THE START OF PERMITTED WORK.
33 of 36	ALL WORK WITHIN THE STATE RIGHT OF WAY MUST FOLLOW THE SPECIFICATIONS AND STANDARDS OF PUBLICATION 408 AND PUBLICATION 72M.
34 of 36	PERMITTEE WILL BE RESPONSIBLE FOR COORDINATING RELOCATION OF ANY UTILITY FACILITY CONFLICTS WHICH ARE A RESULT OF ACTIVITIES CONDUCTED UNDER THIS PERMIT. ALL UTILITY FACILITY COORDINATION AND RELOCATION MUST BE IN ACCORDANCE WITH 67 PA. CODE CHAPTER 459, OCCUPANCY OF HIGHWAYS BY UTILITIES.
35 of 36	SUBMIT FORM M-937R (ROUTE/BRIDGE RESTRICTION), TO THE COUNTY PERMIT INSPECTOR AT LEAST 15 DAYS IN ADVANCE FOR ANY LANE RESTRICTIONS, LANE CLOSURES OR APPROVED DETOURS. THE INSPECTOR WILL REVIEW AND FORWARD THE REQUEST TO THE DISTRICT HAULING UNIT FOR APPROVAL.
36 of 36	IT IS THE PERMITTEES RESPONSIBILITY TO PROVIDE NECESSARY EQUIPMENT FOR TESTING OF MATERIALS DELIVERED ONSITE INCLUDING CERTIFIED TECHNICIANS.

Acknowledgement of Completion	Michael B. Carroll
Permit work has been completed:	Secretary of Transportation
Date:	Kevin M. Keefe, P.E.
By:	District Executive

Appendix C
PennDOT HOP Plan Drawings

RETTEW
We answer to you.



LOCATION MAP
SCALE: N.T.S.

LIMIT OF WORK
STA. 0+00.00
SEG. 0640, OFF. 0000
SR 0772
UPPER LEACOCK TWP.
LANCASTER COUNTY

LIMIT OF WORK
STA. 453+50.00
SEG. 0420, OFF. 2837
SR 0023
UPPER LEACOCK TWP.
LANCASTER COUNTY

LIMIT OF WORK
STA. 346+36.97
SEG. 0380, OFF. 1297
SR 0023
UPPER LEACOCK TWP.
LANCASTER COUNTY

LIMIT OF WORK
STA. 1+00.00
SEG. 0640, OFF. 0100
SR 0772
UPPER LEACOCK TWP.
LANCASTER COUNTY

LEGEND

- FULLY CONTROLLED ACCESS HIGHWAY
- MULTI-LANE HIGHWAY
- TRAFFIC ROUTE
- REMAINING STATE ROAD AND IDENTIFIER
- STATE MAINTAINED BRIDGE
- TOWNSHIP ROAD
- TOWNSHIP ROAD (PRIMITIVE / UNIMPROVED)
- OTHER ROAD
- INTERSTATE INTERCHANGE NUMBER
- INTERSTATE TRAFFIC ROUTE
- UNITED STATES TRAFFIC ROUTE
- PENNSYLVANIA TRAFFIC ROUTE
- RAILROAD (IN SERVICE)
- RAILROAD ABANDONED (TRACK RETAINED)
- STATE LINE
- COUNTY LINE
- TOWNSHIP LINE

Approved
By danwhalen on 07/13/2026

DISTRICT	COUNTY	TOWNSHIP	BOROUGH	ROUTE	SEGMENT	TOTAL SHEETS
8-0	LANCASTER	UPPER LEACOCK	–	0023		30
	LANCASTER	UPPER LEACOCK	–	0772		

HIGHWAY OCCUPANCY PERMIT

DRAWINGS

FOR

INSTALLATION

OF

SUBSURFACE SANITARY SEWER FACILITIES

FOR

UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY

ONTO

STATE ROUTE 0023 SECTION –

IN LANCASTER COUNTY

FROM STA. 346+36.97 TO STA. 453+50.00 LENGTH 10,713.03 Ft. 2.029 Mi.

FROM SEG. 0380 OFFSET 1297 TO SEG. 0420 OFFSET 2837

STATE ROUTE 0772 SECTION –

IN LANCASTER COUNTY

FROM STA. 00+00.00 TO STA. 1+00.00 LENGTH 100.00 Ft. 0.019 Mi.

FROM SEG. 0640 OFFSET 0000 TO SEG. 0640 OFFSET 0100

HOP APPLICATION NUMBER 403667

PAGE	DESCRIPTION	LAST REVISED
1 OF 30	COVER SHEET	
2 OF 30	GENERAL NOTES	
3 OF 30	EXISTING PAVING HISTORY	
4 OF 30	EXISTING PAVING HISTORY	
5 OF 30	EXISTING PAVING HISTORY	
6 OF 30	EXISTING PAVING HISTORY	
7 OF 30	EXISTING PAVING HISTORY	
8 OF 30	EXISTING PAVING HISTORY/DETAILS	
9 OF 30	NOTES / DETAILS	
10 OF 30	TYPICAL SECTIONS	
11 OF 30	TYPICAL SECTIONS	
12 OF 30	TYPICAL SECTIONS	
13 OF 30	TYPICAL SECTIONS	
14 OF 30	TYPICAL SECTIONS	
15 OF 30	CONSTRUCTION PLANS	
16 OF 30	CONSTRUCTION PLANS	
17 OF 30	CONSTRUCTION PLANS	
18 OF 30	CONSTRUCTION PLANS	
19 OF 30	CONSTRUCTION PLANS	
20 OF 30	CONSTRUCTION PLANS	
21 OF 30	CONSTRUCTION PLANS	
22 OF 30	CONSTRUCTION PLANS	
23 OF 30	CONSTRUCTION PLANS	
24 OF 30	CONSTRUCTION PLANS	
25 OF 30	CONSTRUCTION PLANS	
26 OF 30	CONSTRUCTION PLANS	
27 OF 30	CONSTRUCTION PLANS	
28 OF 30	CONSTRUCTION PLANS	
29 OF 30	CONSTRUCTION PLANS	
30 OF 30	CONSTRUCTION PLANS	

NOTE: THE FOLLOWING RC SERIES STANDARDS HAVE BEEN USED IN THIS DRAWING SET:

		CURRENT APPROVED DATE
RC-10M	– CLASSIFICATION OF EARTHWORK	FEB. 10, 2026
RC-13M	– PAY LIMIT OF SUBBASE	FEB. 10, 2026
RC-25M	– SHOULDERS	FEB. 10, 2026
RC-28M	– OVERLAY TRANSITIONS AND PAVING NOTCHES	FEB. 10, 2026
RC-64M	– CURBS AND GUTTERS	APR. 07, 2026
RC-67M	– CURB RAMPS AND SIDEWALKS	FEB. 10, 2026

NOTE: THE FOLLOWING TC SERIES STANDARDS HAVE BEEN USED IN THIS DRAWING SET:

		CURRENT APPROVED DATE
TC-8600	– PAVEMENT MARKINGS (EXPRESSWAY/ FREEWAY, CONVENTIONAL, LEGENDS & SYMBOLS)	MAR. 16, 2026
TC-8604	– DELINEATION	MAR. 16, 2026
TC-8702B	– POST-MOUNTED SIGNS, TYPE B	MAR. 16, 2026

DESIGN DESIGNATION SR 0023

HIGHWAY CLASSIFICATION	– URBAN – MINOR ARTERIAL	CURRENT A.D.T.	– 14,487 (2026) *
DESIGN SPEED	– 35 MPH (POSTED)	DESIGN YEAR A.D.T.	– 14,779 (2031)
PAVEMENT WIDTH	– VARIES 22.0' TO 35.0'	D.H.V.	– 1,014
SHOULDER WIDTH (EFFECTIVE)	– VARIES 6.0' TO 19.0'	TRUCKS	– 6%
		D	– 55%

DESIGN DESIGNATION SR 0772

HIGHWAY CLASSIFICATION	– URBAN – MINOR ARTERIAL	CURRENT A.D.T.	– 4,821 (2026) *
DESIGN SPEED	– 40 MPH (POSTED)	DESIGN YEAR A.D.T.	– 4,918 (2031)
PAVEMENT WIDTH	– VARIES 33.6' TO 43.9'	D.H.V.	– 434
SHOULDER WIDTH (EFFECTIVE)	– VARIES 3.0 'TO 3.6'	TRUCKS	– 11%
		D	– 59%

* – BASED ON TRAFFIC INFORMATION REPOSITORY (TIRe)

SCALE

HORIZONTAL 0 25 FT. 50 FT.

VERTICAL 0 5 FT. 10 FT.

(UNLESS OTHERWISE NOTED)

ONE CALL SYSTEM SERIAL NO. NOTIFICATION BY RETTEW ASSOCIATES
DATE: AUGUST 04, 2025

ONE CALL SYSTEM SERIAL NUMBER: 20252162133

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 STOP - CALL BEFORE YOU DIG!

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES (3) WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND (10) WORKING DAYS IN DESIGN STAGE - STOP CALL

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

PROJECT ENGINEER
JUNE 12, 2026

C:_RettewVaultWIP\0571404139-New Holland\Sheets\TR\0571404139-TR-COVER.dwg

CLIENT
UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY
161 NEWPORT ROAD
LEOLA PA, 17540

RETTEW.

3020 Columbia Ave., Lancaster, PA 17603
(717) 394-3721 · Fax (717) 394-1063
Akron-Canton, OH · St. Clairsville, OH
Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA
Berwyn, PA · Pittsburgh, PA · Williamsport, PA
State College, PA

MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	NICK LEIDY	DATA COLLECTOR
DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	2 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

GENERAL NOTES

1. THE EXISTING SPEED LIMIT ON SR 0023 IS 35 M.P.H.
2. THE RIGHT-OF-WAY ALONG SR 0023 IS FREE ACCESS.
3. THE EXISTING SPEED LIMIT ON SR 0772 IS 40 M.P.H.
4. THE RIGHT-OF-WAY ALONG SR 0772 IS FREE ACCESS.
5. ALL WORK IN PA STATE HIGHWAY RIGHT-OF-WAY IS TO BE PERFORMED CONSISTENT WITH THE FOLLOWING:
   - PENNDOT PUBLICATION 13, DESIGN MANUAL PART 2 HIGHWAY DESIGN
   - PENNDOT PUBLICATION 34, APPROVED AGGREGATE PRODUCERS (BULLETIN 14);
   - PENNDOT PUBLICATION 35, APPROVED CONSTRUCTION MATERIALS (BULLETIN 15);
   - PENNDOT PUBLICATION 41, PRODUCERS OF ASPHALT MATERIALS (BULLETIN 41);
   - PENNDOT PUBLICATION 42, PRODUCERS OF READY-MIX CONCRETE (BULLETIN 42);
   - PENNDOT PUBLICATION 46, TRAFFIC ENGINEERING MANUAL;
   - PENNDOT PUBLICATION 72M, STANDARDS FOR ROADWAY CONSTRUCTION;
   - PENNDOT PUBLICATION 111, PAVEMENT MARKINGS AND SIGNING STANDARDS;
   - PENNDOT PUBLICATION 212, OFFICIAL TRAFFIC CONTROL DEVICES;
   - PENNDOT PUBLICATION 213, TEMPORARY TRAFFIC CONTROL GUIDELINES;
   - PENNDOT PUBLICATION 408, SPECIFICATIONS; AND
   - MUTCD, LATEST PENNDOT ADOPTED EDITION.
4. THE PROPOSED SANITARY SEWER FACILITIES SHALL BE INSTALLED CONSISTENT WITH TITLE 67, CHAPTER 459 REGULATIONS.
5. PA STATE HIGHWAY RIGHT-OF-WAY MAY NOT BE USED FOR PARKING.
6. PERMITTEE IS RESPONSIBLE FOR MAINTENANCE OF ALL AUTHORIZED SIGNS AND PAVEMENT MARKINGS.
7. THREE TO TEN WORKING DAYS PRIOR TO EXCAVATION BASED ON THE COMPLEXITY OF THE PROJECT, THE CONTRACTOR MUST CONTACT THE PA ONE CALL SYSTEM INC., PHONE 1-800-242-1776, SERIAL NO. FOR UPPER LEACOCK TOWNSHIP, ADDITIONAL INFORMATION IS AVAILABLE AT www.pa1call.org/PA811/Public.
8. THE CONTRACTOR IS REQUIRED TO NOTIFY THE DEPARTMENT AND SUBMIT AN ALLEGED VIOLATION REPORT (AVR) TO THE PA PUBLIC UTILITY COMMISION THROUGH THE PA ONE CALL SYSTEM, WWW.PA1CALL.ORG, WITHIN TEN (10) BUSINESS DAYS AFTER A UTILITY LINE IS STRUCK, DAMAGED, OR PREVIOUS DAMAGE IS DISCOVERED AS REQUIRED BY PENNSYLVANIA'S UNDERGROUND UTILITY LINE PROTECTION LAW ACT 50 (P.L.852, NO. 287 AMENDED OCT. 30, 2017).
9. IF A TRAFFIC SIGNAL IS WITHIN 500 FEET OF THE SITE, CALL THE DISTRICT TRAFFIC ENGINEER AT 717-787-8789 AT LEAST 3 DAYS PRIOR TO THE START OF WORK.
10. FINAL APPROVAL OF THE PROPOSED SAWCUT LOCATION WILL BE AT THE DISCRETION OF THE INSPECTOR-IN CHARGE AND WILL BE CONFIRMED AT THE PRE-CONSTRUCTION MEETING. IF THE SAWCUT MUST BE LOCATED WITHIN A TRAVEL LANE, IT WILL BE NECESSARY TO MILL AND OVERLAY THE TRAVEL LANE TO PREVENT A JOINT IN THE WHEEL PATH.
11. THE CONTRACTOR SHALL SAWCUT AND REMOVE SHOULDER MATERIAL AS NECESSARY TO ENSURE THE PAVEMENT REPLACEMENT IS ADJACENT TO THE FULL-DEPTH PAVEMENT OF THE TRAVEL LANE.
12. THE PROPOSED PAVEMENT SECTION MUST BE AS INDICATED ON THE PLAN, OR MATCH THE EXISTING AS FOUND IN THE FIELD, WHICHEVER IS GREATER.
13. PRIOR TO AN OVERLAY, BITUMINOUS OR CONCRETE BASE REPAIR OR JOINT REPLACEMENT MAY BE REQUIRED. REPAIR/REPLACEMENT WILL BE AT THE DISCRETION OF THE INSPECTOR-IN-CHARGE.
14. ALL EXISTING PAVEMENT MARKINGS WHICH ARE NO LONGER APPROPRIATE SHALL BE ERADICATED BY THE PERMITTEE. THE PERMITTEE SHALL PLACE ALL REQUIRED NEW PAVEMENT MARKINGS.
15. ALL PAVEMENT MARKINGS OTHER THAN LONGITUDINAL LINES TO BE HOT THERMOPLASTIC (PUBLICATION 111, TC-8600).
16. MATCH EXISTING PAVEMENT MARKINGS AT THE LIMITS OF WORK.
17. MATERIAL CERTIFICATION MUST BE PROVIDED, BY AN APPROVED MANUFACTURER LISTED IN THE DEPARTMENTS'S PUBLICATION 35 (BULLETIN 15) FOR ALL MATERIALS AND STRUCTURES WITHIN PENNDOT RIGHT-OF-WAY.
18. ALL PROPOSED PEDESTRIAN FACILITIES REFLECTED ON THESE PLANS, THAT ARE OUTSIDE OF PENNDOT LEGAL RIGHT-OF-WAY, SHALL BE CONSTRUCTED TO COMPLY WITH REQUIREMENTS OF THE U.S. ACCESS BOARD. PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) OF THE ACCESSIBILITY GUIDELINES OF BUILDINGS AND FACILITIES (ADAAG). PENNDOT DESIGN MANUAL PART 2, CHAPTER 6, AND PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION (PENNDOT PUBLICATION 72M, RC-67M) PROVIDE GUIDANCE ON ADA ACCESSIBLE DESIGN FOR PEDESTRIAN FACILITIES AND CAN BE UTILIZED FOR REFERENCE.
19. THE PERMITTEE IS RESPONSIBLE FOR THE COORDINATION OF RELOCATING ANY CONFLICTING UTILITIES WHICH ARE A RESULT OF THESE IMPROVEMENTS.
20. ALL UTILITY RELOCATION PERMITS TAKE PRECEDENCE OVER THE UTILITY RELOCATION POSITIONS SHOWN ON THE HOP PLANS.
21. THE LEGAL RIGHT-OF-WAY ON SR 0023, SECTION 032 R/W, FORMERLY KNOWN AS LR 568, AND LR 148 IN LANCASTER COUNTY FROM STATION 347+92 TO STATION 453+50 IS FIFTY FEET (50) BASED ON PAMPHLET LAW DATED MARCH 20, 1810, STATE LAW LIBRARY, PAGE 205 AND ACT 13 OF THE PENNSYLVANIA GENERAL ASSEMBLY, DATED JANUARY 26, 1849.

UTILITY NOTES

1. THE CONTRACTOR MUST CONTACT THE PENNSYLVANIA ONE-CALL NUMBER AT 1-800-242-1776 AT LEAST THREE WORKING DAYS PRIOR TO THE START OF EXCAVATION OR DEMOLITION WORK TO HAVE ALL UNDERGROUND UTILITIES MARKED IN THE AREA.
2. ALL UTILITY LOCATIONS (PLAN) ARE BASED ON BEST AVAILABLE INFORMATION AND ARE FOR INFORMATIONAL PURPOSES ONLY. ACTUAL LOCATIONS AND DEPTHS MAY VARY AND SHALL BE VERIFIED BY THE CONTRACTOR.

TRAFFIC CONTROL NOTES

1. THIS WORK CONSISTS OF THE MAINTENANCE OF TRAFFIC AND THE PROTECTION OF THE PUBLIC WHEN APPROACHING AND DEPARTING THE CONSTRUCTION AREA AND WITHIN THE LIMITS OF CONSTRUCTION.
2. FURNISH, ERECT, PLACE AND MAINTAIN TRAFFIC CONTROL SIGNS AND DEVICES. MAINTAIN TRAFFIC DURING HOURS OF CONSTRUCTION AND AT ALL OTHER TIMES CONSISTENT WITH THE METHODS INDICATED ON THESE DRAWINGS AND THE FOLLOWING:
   - PENNDOT PUBLICATION 35, APPROVED CONSTRUCTION MATERIALS (BULLETIN 15);
   - PENNDOT PUBLICATION 46, TRAFFIC ENGINEERING MANUAL;
   - PENNDOT PUBLICATION 72M, STANDARDS FOR ROADWAY CONSTRUCTION;
   - PENNDOT PUBLICATION 111, PAVEMENT MARKINGS AND SIGNING STANDARDS;
   - PENNDOT PUBLICATION 212, OFFICIAL TRAFFIC CONTROL DEVICES;
   - PENNDOT PUBLICATION 213, TEMPORARY TRAFFIC CONTROL GUIDELINES;
   - PENNDOT PUBLICATION 236, HANDBOOK OF APPROVED SIGNS;
   - PENNDOT PUBLICATION 408, SPECIFICATIONS; AND
   - MUTCD LATEST PENNDOT ADOPTED EDITION.
3. REMOVE THE DEVICES IMMEDIATELY UPON COMPLETION OF THE WORK, THE DEPARTMENT WILL REMOVE ANY TRAFFIC CONTROL DEVICES ERECTED BY DEPARTMENT FORCES.
4. PERMITTEE MUST ARRANGE FOR INSPECTION OF ALL TRAFFIC CONTROL DEVICES PRIOR TO START OF WORK.
5. COVER OR REMOVE ALL CONFLICTING SIGNS AND ERADICATE ALL CONFLICTING PAVEMENT MARKINGS.
6. MOUNT ALL LONG TERM ADVANCE WARNING SIGNS ON TYPE III BARRICADES UNLESS OTHERWISE NOTED OR INSTRUCTED BY DISTRICT OFFICE.
7. ALL SIGNS AND DEVICES TO BE MAINTAINED IN NEW OR LIKE NEW CONDITION.
8. DRIVEWAYS WILL BE KEPT ACCESSIBLE AT ALL TIMES. LOCATE ALL SIGNS SO THAT SIGHT DISTANCE WILL NOT BE OBSTRUCTED AT DRIVEWAYS AND LOCAL ROADS..
9. ALL CHANNELIZING DEVICES, BARRICADES, AND SIGNS SHALL HAVE TYPE III OR BETTER PRISMATIC RETROREFLECTIVE SHEETING. SHEETING SHALL BE APPROVED AND LISTED IN PENNDOT PUBLICATION 35 (BULLETIN 15).
10. NO TRAFFIC RESTRICTIONS OR LANE CLOSURES ARE PERMITTED BETWEEN 6:00 AM AND 9:00 AM AND BETWEEN 3:00 PM AND 6:00 PM MONDAYS THROUGH FRIDAYS OR ON LEGAL HOLIDAYS AND WEEKENDS ASSOCIATED WITH LEGAL HOLIDAYS. ALL RESTRICTIONS AND CLOSURES ARE TO BE REMOVED BY NOON ON THE DAY PRIOR TO THE LEGAL HOLIDAY.
11. PERMITTEE SHALL NOTIFY LOCAL EMERGENCY AUTHORITIES (e.g. POLICE, FIRE, MEDICAL), AFFECTED BUSINESSES, SCHOOL DISTRICT(s), THE GENERAL PUBLIC, THE DISTRICT PERMIT MANAGER AND THE DISTRICT APRAS COORDINATOR AT LEAST FOURTEEN DAYS PRIOR TO ANY SIGNIFICANT TRAFFIC IMPACTS (e.g. LATERAL WIDTH RESTRICTIONS LESS THAN 16 FEET, DETOURS).
12. MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE PATA DRAWING(s) PATA 102, PATA 106, PATA 107, PATA 109-B, PATA 109-F, PATA 109-H, PATA 109-L, PATA 110-D, PATA 110-N, PATA 201-A, AND PATA 202-A IN THE CURRENT PENNDOT PUBLICATION 213, "TEMPORARY TRAFFIC CONTROL GUIDELINES".
13. REMOVE ALL SHORT-TERM WORK ZONE TRAFFIC CONTROL SIGNING UPON COMPLETION OF THAT DAY'S WORK PERIOD.
14. DO NOT STOP TRAFFIC WITHIN WORK AREA FOR MORE THAN 5-MIN. PERIOD AT ANY ONE TIME.
15. NOTIFY THE LOCAL MUNICIPALITY WHERE SIGNALIZED INTERSECTIONS FALL WITHIN THE WORK ZONE. DO NOT FLAG A SIGNALIZED INTERSECTION WITHOUT THE MUNICIPALITY PLACING THE SIGNAL ON FLASH.
16. THE CONTRACTOR SHALL COMPLY WITH ACT 229 OF DECEMBER 2002 DURING CONSTRUCTION ACTIVITIES WITHIN PENNDOT'S RIGHT-OF-WAY.
17. DROP-OFFS CREATED BY CONSTRUCTION OPERATIONS SHALL BE TREATED CONSISTENT WITH PUBLICATION 408, SECTION 901.3(j).

UTILITY NOTES

1. ALL UTILITY LOCATIONS (PLAN & PROFILE) ARE BASED ON BEST AVAILABLE INFORMATION AND ARE FOR INFORMATIONAL PURPOSES ONLY. ACTUAL LOCATIONS AND DEPTHS MAY VARY AND SHALL BE VERIFIED BY THE CONTRACTOR.

LIST OF PUBLIC UTILITIES

SYMBOL	OWNER	ADDRESS	CONTACT
	USCI ATTN: JEFFREY TRUMBOWER	9045 N. RIVER ROAD, SUITE 300 INDIANAPOLIS, IN 46240	jefftrumbower@usicllc.com (317) 810-8254
OC	FRONTIER COMMUNICATIONS OF PA INC. ATTN: MICHAEL NAVICH	300E LAIRD STREET WILKES BARRE, PA 18702	michael.navich@ftr.com (570) 208-3375
	USDI UTILITY SAFETY AND DESIGN INC. ATTN: JASON BRANGERS	1018 MT VERNON DRIVE P.O. BOX 727 SHELBYVILLE, KY 40066	jason@usdi.us (502) 513-5127
OT OC	VERIZON PENNSYLVANIA LLC ATTN: DIANE REDILLA	1050 VIRGINIA DR FORT WASHINGTON, PA 19034	diane.c.redilla@verizon.com (215) 591-6210
G	BUCKEYE PARTNERS ATTN: BRANDON ALLEN	THE BUCKEYE BUILDING 6161 HAMILTON BLVD ALLENTOWN, PA 18106	ballen@buckeye.com (216) 318-2124
S W	UPPER LEACOCK TWP MUNICIPAL AUTHORITY ATTN: ROBERT FRICKE	161 NEWPORT RD LEOLA, PA 17540	rfricke@ultwpl.com (717) 656-9755 EXT. 532
S W	UPPER LEACOCK TWP MUNICIPAL AUTHORITY ATTN: DEREK MARTIN	161 NEWPORT RD LEOLA, PA 17540	dmartin@ultwp.com (717) 656-9755 EXT. 554
OE	PPL ELECTRIC UTILITIES CORPORATION ATTN: PAMELA SEITZER	4810 LYCOMING MALL MONTOURSVILL, PA 17754	pdseitzer@pplweb.com (570) 368-5394
G	UGI UTILITIES, INC. ATTN: GEOFFREY FERGUSON	1301 AIP DR MIDDLETOWN, PA 17057-5987	gferguson@ugi.com (610) 807-3118

LEGEND

- PENNDOT LEGAL RIGHT-OF-WAY LINE
- EXISTING CURB LINE
- EXISTING EDGE OF PAVEMENT
- 4"/W 4" WHITE LINE
- 4"D/Y 4" DOUBLE YELLOW LINE
- EXISTING STORM SEWER
- EXISTING STORM INLET
- S S EXISTING SANITARY SEWER
- W W EXISTING WATER LINE
- WV EXISTING WATER VALVE
- UE UE EXISTING UNDERGROUND ELECTRIC LINE
- UT UT EXISTING UNDERGROUND COMMUNICATIONS LINE
- OE/OT OE/OT EXISTING UNDERGROUND COMMUNICATIONS LINE
- EXISTING UTILITY POLE
- EXISTING SIGN
- GV EXISTING GAS VALVE
- SIZE VARIES G EXISTING GAS MAIN/LATERAL
- SIZE VARIES FM EXISTING FORCE MAIN (TO BE ABANDONED)
- PROPOSED OPEN CUT
- FM FM PROPOSED 36" WIDE (MAX) EXCAVATION TRENCH FOR OPEN CUT AREAS LOCATED WITHIN PENNDOT LEGAL R/W (NON PAVEMENT/SHOULDER)
- FM FM PROPOSED 36" WIDE (MAX) EXCAVATION TRENCH FOR OPEN CUT AREAS LOCATED WITHIN PENNDOT LEGAL R/W (PAVEMENT)

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — SCOTT KENNETH NALE — ENGINEER PE-075541

GENERAL NOTES

CADD FILE:
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-DETAILS.dwg

CLIENT
UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY
161 NEWPORT ROAD
LEOLA PA, 17540

RETTEW

3020 Columbia Ave., Lancaster, PA 17603
(717) 394-3721 - Fax (717) 394-1063
Akron-Canton, OH - St. Clairsville, OH
Lehigh Valley, PA - Morgantown, WV - Mechanicsburg, PA
Berwyn, PA - Pittsburgh, PA - Williamsport, PA
State College, PA

MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	3 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

RMSRT451 ROADWAY MANAGEMENT INFORMATION SYSTEM 02/25/2026 10:15:40
LTERM: ANWALAK PAVEMENT HISTORY

COUNTY NO/NAME	SR	SEGMENT NO.	OFFSET LENG	FROM	TO	LANES THRU	PARK	TURN	BIKE	NOTES: NO - RANGE TO---
36 LANCASTER	0023	0380	1452	1111	1452	02	N	N	N	SEGMNT: N.A.
S										OFFSET: N.A.
E										SURF..: 61
										TRTMT.: H
										SN....: 7.0

L NO	TYPE	CODE	LAYER DESCRIPTION	YEAR	DEPTH (IN)	WIDTH (FT)
01	BW	SWWE7	SPAV,WMA WRG,76-22,12.5MM,E	2022	+2.00	38
02	BW	SWS01	SPAV,WMA WRGSCRC,64-22,9.5MM	2022	+1.00	38
03	BB	SWB10	SPAV,WMA BNDR, 19MM	2022	+2.50	38
04	BC	SWBS1	SPAV,WMA BASE, 25MM	2022	+6.00	38
05	SB	SUB20	2A SUBBASE	2022	+8.00	38
06	BW	SWWE7	SPAV,WMA WRG,76-22,12.5MM,E	2015	+2.00	38
07	BW	SWS01	SPAV,WMA WRGSCRC,64-22,9.5MM	2015	+1.00	38
08	**	MILL0	MILLING (AVERAGE DEPTH)	2015	-3.00	38
09	BW	ID2E0	BITUMINOUS WEARING CRSE ID-2	1989	+1.50	38
10	BW	IS2L0	SCRATCH BIT WEAR COURSE ID-2	1989	+.50	38

VERIFICATION INFO
DATE: / /
VER IND:
VER ID.:
--- MAXIMUM ---
AADT..: 14,589
TRK %.: 06
ESAL..: 000472
IRI...: NO TEST

TOTAL 000000 PAVED 000000

ACTION: I A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS ENTER TO DISPLAY MORE RECORDS

RMSRT451 ROADWAY MANAGEMENT INFORMATION SYSTEM 02/25/2026 10:15:43
LTERM: ANWALAK PAVEMENT HISTORY

COUNTY NO/NAME	SR	SEGMENT NO.	OFFSET LENG	FROM	TO	LANES THRU	PARK	TURN	BIKE	NOTES: NO - RANGE TO---
36 LANCASTER	0023	0380	1452	1111	1452	02	N	N	N	SEGMNT: N.A.
S										OFFSET: N.A.
E										SURF..: 61
										TRTMT.: H
										SN....: 7.0

L NO	TYPE	CODE	LAYER DESCRIPTION	YEAR	DEPTH (IN)	WIDTH (FT)
11	BW	FJ1U0	BITUMINOUS WEARING CRSE FJ-1	1962	+1.00	38
12	WB	CP200	BITUM WEARING COURSE CP-2	1947	+2.00	07
13	WB	CRST0	CRUSHED STONE SUBBASE	1947	+6.00	07
14	BW	HE100	BITUMINOUS WEARING CRSE HE-1	1947	+2.25	24
15	SB	CRST0	CRUSHED STONE SUBBASE	1947	+10.00	24

VERIFICATION INFO
DATE: / /
VER IND:
VER ID.:
--- MAXIMUM ---
AADT..: 14,589
TRK %.: 06
ESAL..: 000472
IRI...: NO TEST

TOTAL +34.75 PAVED +16.75

ACTION: I A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 214 END OF RECORDS TO DISPLAY

EXISTING PAVEMENT – SR 0023
SEG. 0380, OFF. 1347 TO 1452
NOT TO SCALE

RMSRT451 ROADWAY MANAGEMENT INFORMATION SYSTEM 01/02/2026 09:17:05
LTERM: ANWALAK PAVEMENT HISTORY

COUNTY NO/NAME	SR	SEGMENT NO.	OFFSET LENG	FROM	TO	LANES THRU	PARK	TURN	BIKE	NOTES: NO - RANGE TO---
36 LANCASTER	0023	0390	3428	0000	0792	02	N	N	N	SEGMNT: N.A.
S										OFFSET: N.A.
E										SURF..: 61
										TRTMT.: H
										SN....: 7.0

L NO	TYPE	CODE	LAYER DESCRIPTION	YEAR	DEPTH (IN)	WIDTH (FT)
01	BW	SWWE7	SPAV,WMA WRG,76-22,12.5MM,E	2022	+2.00	38
02	BW	SWS01	SPAV,WMA WRGSCRC,64-22,9.5MM	2022	+1.00	38
03	BB	SWB10	SPAV,WMA BNDR, 19MM	2022	+2.50	38
04	BC	SWBS1	SPAV,WMA BASE, 25MM	2022	+6.00	38
05	SB	SUB20	2A SUBBASE	2022	+8.00	38
06	BW	SWWE7	SPAV,WMA WRG,76-22,12.5MM,E	2015	+2.00	38
07	BW	SWS01	SPAV,WMA WRGSCRC,64-22,9.5MM	2015	+1.00	38
08	**	MILL0	MILLING (AVERAGE DEPTH)	2015	-3.00	38
09	BW	ID2E0	BITUMINOUS WEARING CRSE ID-2	1989	+1.50	38
10	BW	IS2L0	SCRATCH BIT WEAR COURSE ID-2	1989	+.50	38

VERIFICATION INFO
DATE: / /
VER IND:
VER ID.:
--- MAXIMUM ---
AADT..: 13,417
TRK %.: 07
ESAL..: 000502
IRI...: NO TEST

TOTAL 000000 PAVED 000000

ACTION: I A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS ENTER TO DISPLAY MORE RECORDS

RMSRT451 ROADWAY MANAGEMENT INFORMATION SYSTEM 01/02/2026 09:17:14
LTERM: ANWALAK PAVEMENT HISTORY

COUNTY NO/NAME	SR	SEGMENT NO.	OFFSET LENG	FROM	TO	LANES THRU	PARK	TURN	BIKE	NOTES: NO - RANGE TO---
36 LANCASTER	0023	0390	3428	0000	0792	02	N	N	N	SEGMNT: N.A.
S										OFFSET: N.A.
E										SURF..: 61
										TRTMT.: H
										SN....: 7.0

L NO	TYPE	CODE	LAYER DESCRIPTION	YEAR	DEPTH (IN)	WIDTH (FT)
11	BW	ID2U0	BITUMINOUS WEARING CRSE ID-2	1973	+1.50	38
12	BW	FJ1U0	BITUMINOUS WEARING CRSE FJ-1	1962	+1.00	38
13	WB	CP200	BITUM WEARING COURSE CP-2	1947	+2.00	07
14	WB	CRST0	CRUSHED STONE SUBBASE	1947	+6.00	07
15	BW	HE100	BITUMINOUS WEARING CRSE HE-1	1947	+2.25	24
16	SB	CRST0	CRUSHED STONE SUBBASE	1947	+10.00	24

VERIFICATION INFO
DATE: / /
VER IND:
VER ID.:
--- MAXIMUM ---
AADT..: 13,417
TRK %.: 07
ESAL..: 000502
IRI...: NO TEST

TOTAL +36.25 PAVED +18.25

ACTION: I A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS ENTER TO DISPLAY MORE RECORDS

EXISTING PAVEMENT – SR 0023
SEG. 0390, OFF. 0000 TO 0792
NOT TO SCALE

RMSRT451 ROADWAY MANAGEMENT INFORMATION SYSTEM 01/02/2026 09:17:27
LTERM: ANWALAK PAVEMENT HISTORY

COUNTY NO/NAME	SR	SEGMENT NO.	OFFSET LENG	FROM	TO	LANES THRU	PARK	TURN	BIKE	NOTES: NO - RANGE TO---
36 LANCASTER	0023	0390	3428	0792	1000	02	N	N	N	SEGMNT: N.A.
S										OFFSET: N.A.
E										SURF..: 61
										TRTMT.: H
										SN....: 7.0

L NO	TYPE	CODE	LAYER DESCRIPTION	YEAR	DEPTH (IN)	WIDTH (FT)
01	BW	SWWE7	SPAV,WMA WRG,76-22,12.5MM,E	2022	+2.00	38
02	BW	SWS01	SPAV,WMA WRGSCRC,64-22,9.5MM	2022	+1.00	38
03	**	MILL0	MILLING (AVERAGE DEPTH)	2022	-3.00	38
04	BW	SWWE7	SPAV,WMA WRG,76-22,12.5MM,E	2022	+2.00	38
05	BW	SWS01	SPAV,WMA WRGSCRC,64-22,9.5MM	2022	+1.00	38
06	BB	SWB10	SPAV,WMA BNDR, 19MM	2022	+2.50	38
07	BC	SWBS1	SPAV,WMA BASE, 25MM	2022	+6.00	38
08	SB	SUB20	2A SUBBASE	2022	+8.00	38
09	BW	SWWE7	SPAV,WMA WRG,76-22,12.5MM,E	2015	+2.00	38
10	BW	SWS01	SPAV,WMA WRGSCRC,64-22,9.5MM	2015	+1.00	38

VERIFICATION INFO
DATE: / /
VER IND:
VER ID.:
--- MAXIMUM ---
AADT..: 13,417
TRK %.: 07
ESAL..: 000502
IRI...: NO TEST

TOTAL 000000 PAVED 000000

ACTION: I A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS ENTER TO DISPLAY MORE RECORDS

RMSRT451 ROADWAY MANAGEMENT INFORMATION SYSTEM 01/02/2026 09:17:33
LTERM: ANWALAK PAVEMENT HISTORY

COUNTY NO/NAME	SR	SEGMENT NO.	OFFSET LENG	FROM	TO	LANES THRU	PARK	TURN	BIKE	NOTES: NO - RANGE TO---
36 LANCASTER	0023	0390	3428	0792	1000	02	N	N	N	SEGMNT: N.A.
S										OFFSET: N.A.
E										SURF..: 61
										TRTMT.: H
										SN....: 7.0

L NO	TYPE	CODE	LAYER DESCRIPTION	YEAR	DEPTH (IN)	WIDTH (FT)
11	**	MILL0	MILLING (AVERAGE DEPTH)	2015	-3.00	38
12	BW	ID2E0	BITUMINOUS WEARING CRSE ID-2	1989	+1.50	38
13	BW	IS2L0	SCRATCH BIT WEAR COURSE ID-2	1989	+.50	38
14	BW	ID2U0	BITUMINOUS WEARING CRSE ID-2	1973	+1.50	38
15	BW	FJ1U0	BITUMINOUS WEARING CRSE FJ-1	1962	+1.00	38
16	WB	CP200	BITUM WEARING COURSE CP-2	1947	+2.00	07
17	WB	CRST0	CRUSHED STONE SUBBASE	1947	+6.00	07
18	BW	HE100	BITUMINOUS WEARING CRSE HE-1	1947	+2.25	24
19	SB	CRST0	CRUSHED STONE SUBBASE	1947	+10.00	24

VERIFICATION INFO
DATE: / /
VER IND:
VER ID.:
--- MAXIMUM ---
AADT..: 13,417
TRK %.: 07
ESAL..: 000502
IRI...: NO TEST

TOTAL +36.25 PAVED +18.25

ACTION: I A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS ENTER TO DISPLAY MORE RECORDS

EXISTING PAVEMENT – SR 0023
SEG. 0390, OFF. 0792 TO 1000
NOT TO SCALE

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER PE-075541

EXISTING PAVING HISTORY

CADD FILE:
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-DETAILS.dwg

CLIENT
UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY
161 NEWPORT ROAD
LEOLA PA, 17540

RETTEW

3020 Columbia Ave., Lancaster, PA 17603
(717) 394-3721 · Fax (717) 394-1063
Akron-Canton, OH · St. Clairsville, OH
Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA
Berwyn, PA · Pittsburgh, PA · Williamsport, PA
State College, PA

MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	4 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

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RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:17:36
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0390 3428 1000 3428 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 52
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 2.9
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   38 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   38 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   38 |    /    /
  04  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   38 | VER IND:
  05  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   38 | VER ID.:
  06  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1973  +1.50   38 | --- MAXIMUM ---
  07  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   38 | AADT..:  13,417
  08  WB  CP200 BITUM WEARING COURSE CP-2    1947  +2.00   07 | TRK %.: 07
  09  WB  CRST0 CRUSHED STONE SUBBASE        1947  +6.00   07 | ESAL..: 000502
  10  BW  HE100 BITUMINOUS WEARING CRSE HE-1 1947  +2.25   24 | IRI...: NO TEST
                        TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

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RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:17:43
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0390 3428 1000 3428 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 52
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 2.9
  11  SB  CRST0 CRUSHED STONE SUBBASE        1947 +10.00   24 |VERIFICATION INFO
                                                            | DATE:
                                                            |    /    /
                                                            | VER IND:
                                                            | VER ID.:
                                                            | --- MAXIMUM ---
                                                            | AADT..:  13,417
                                                            | TRK %.: 07
                                                            | ESAL..: 000502
                                                            | IRI...: NO TEST
                        TOTAL +16.75 PAVED  +6.75

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 214 END OF RECORDS TO DISPLAY
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EXISTING PAVEMENT – SR 0023
SEG. 0390, OFF. 1000 TO 3428

NOT TO SCALE

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:17:51
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0400 1284 0000 1284 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 3.8
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   38 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   38 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   38 | 07 / 19 / 2016
  04  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   38 | VER IND: VC
  05  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   38 | VER ID.: MBITNER
  06  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1970  +1.50   38 | --- MAXIMUM ---
  07  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00   38 | AADT..:  14,630
  08  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   38 | TRK %.: 06
  09  BW  HE100 BITUMINOUS WEARING CRSE HE-1 1947  +2.25   24 | ESAL..: 000568
  10  WB  CP200 BITUM WEARING COURSE CP-2    1947  +2.00   07 | IRI...: NO TEST
                        TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:17:57
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0400 1284 0000 1284 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 3.8
  11  WB  CRST0 CRUSHED STONE SUBBASE        1947  +6.00   07 |VERIFICATION INFO
  12  SB  CRST0 CRUSHED STONE SUBBASE        1947 +10.00   24 | DATE:
                                                            | 07 / 19 / 2016
                                                            | VER IND: VC
                                                            | VER ID.: MBITNER
                                                            | --- MAXIMUM ---
                                                            | AADT..:  14,630
                                                            | TRK %.: 06
                                                            | ESAL..: 000568
                                                            | IRI...: NO TEST
                        TOTAL +19.75 PAVED  +9.75

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 214 END OF RECORDS TO DISPLAY
```

EXISTING PAVEMENT – SR 0023
SEG. 0400, OFF. 0000 TO 1284

NOT TO SCALE

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:01
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0410 2995 0000 2696 02    N    L    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 3.8
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   38 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   38 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   38 | 07 / 19 / 2016
  04  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   38 | VER IND: VC
  05  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   38 | VER ID.: MBITNER
  06  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1970  +1.50   38 | --- MAXIMUM ---
  07  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00   38 | AADT..:  12,346
  08  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   38 | TRK %.: 09
  09  BW  HE100 BITUMINOUS WEARING CRSE HE-1 1947  +2.25   24 | ESAL..: 000682
  10  WB  CP200 BITUM WEARING COURSE CP-2    1947  +2.00   07 | IRI...: NO TEST
                        TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

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RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:07
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0410 2995 0000 2696 02    N    L    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 3.8
  11  WB  CRST0 CRUSHED STONE SUBBASE        1947  +6.00   07 |VERIFICATION INFO
  12  SB  CRST0 CRUSHED STONE SUBBASE        1947 +10.00   24 | DATE:
                                                            | 07 / 19 / 2016
                                                            | VER IND: VC
                                                            | VER ID.: MBITNER
                                                            | --- MAXIMUM ---
                                                            | AADT..:  12,346
                                                            | TRK %.: 09
                                                            | ESAL..: 000682
                                                            | IRI...: NO TEST
                        TOTAL +19.75 PAVED  +9.75

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

EXISTING PAVEMENT – SR 0023
SEG. 0410, OFF. 0000 TO 2696

NOT TO SCALE

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER PE-075541

EXISTING PAVING HISTORY

CADD FILE:	CLIENT			MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-DETAILS.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW	3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	5 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

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RMSRT451            ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:10
LTERM: ANWALAK                PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0410 2995 2696 2890 02    N    L    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.4
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   24 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   24 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   24 | 02 / 19 / 2014
  04  BW  SPWE4 SPAV,HMA WRG,64-22,12.5MM,E  2009  +2.00   24 | VER IND: VI
  05  BW  SPBL1 SPAV,HMA BNDR LVL,64-22,19MM 2009  +2.50   24 | VER ID.: MARQUSM
  06  **  MILL0 MILLING (AVERAGE DEPTH)      2009  -2.50   24 | --- MAXIMUM ---
  07  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   38 | AADT..:  12,346
  08  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   38 | TRK %.: 09
  09  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1970  +1.50   38 | ESAL..: 000682
  10  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00   38 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

```
RMSRT451            ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:15
LTERM: ANWALAK                PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0410 2995 2696 2890 02    N    L    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.4
  11  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   38 |VERIFICATION INFO
  12  BW  HE100 BITUMINOUS WEARING CRSE HE-1 1947  +2.25   24 | DATE:
  13  WB  CP200 BITUM WEARING COURSE CP-2     1947  +2.00   07 | 02 / 19 / 2014
  14  WB  CRST0 CRUSHED STONE SUBBASE         1947  +6.00   07 | VER IND: VI
  15  SB  CRST0 CRUSHED STONE SUBBASE         1947 +10.00   24 | VER ID.: MARQUSM
                                                               | --- MAXIMUM ---
                                                               | AADT..:  12,346
                                                               | TRK %.: 09
                                                               | ESAL..: 000682
                                                               | IRI...: NO TEST
                          TOTAL +21.75 PAVED +11.75

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

EXISTING PAVEMENT – SR 0023
SEG. 0410, OFF. 2696 TO 2890

NOT TO SCALE

```
RMSRT451            ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:18
LTERM: ANWALAK                PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0410 2995 2890 2995 02    N    L    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.0
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   41 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   41 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   41 | 06 / 23 / 2014
  04  BW  SPWE4 SPAV,HMA WRG,64-22,12.5MM,E  2009  +2.00   41 | VER IND: VI
  05  BW  SPBL1 SPAV,HMA BNDR LVL,64-22,19MM 2009  +1.00   41 | VER ID.: MARQUSM
  06  WB  SPBB1 SPAV,HMA BASE,64-22,25 MM    2009 +10.00   08 | --- MAXIMUM ---
  07  WB  SUB20 2A SUBBASE                   2009  +8.00   08 | AADT..:  12,346
  08  **  MILL0 MILLING (AVERAGE DEPTH)      2009  -2.50   24 | TRK %.: 09
  09  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   38 | ESAL..: 000682
  10  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   38 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

```
RMSRT451            ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:27
LTERM: ANWALAK                PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0410 2995 2890 2995 02    N    L    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.0
  11  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1970  +1.50   38 |VERIFICATION INFO
  12  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00   38 | DATE:
  13  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   38 | 06 / 23 / 2014
  14  BW  HE100 BITUMINOUS WEARING CRSE HE-1 1947  +2.25   24 | VER IND: VI
  15  WB  CP200 BITUM WEARING COURSE CP-2     1947  +2.00   07 | VER ID.: MARQUSM
  16  WB  CRST0 CRUSHED STONE SUBBASE         1947  +6.00   07 | --- MAXIMUM ---
  17  SB  CRST0 CRUSHED STONE SUBBASE         1947 +10.00   24 | AADT..:  12,346
                                                               | TRK %.: 09
                                                               | ESAL..: 000682
                                                               | IRI...: NO TEST
                          TOTAL +20.25 PAVED +10.25

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 214 END OF RECORDS TO DISPLAY
```

EXISTING PAVEMENT – SR 0023
SEG. 0410, OFF. 2890 TO 2995

NOT TO SCALE

```
RMSRT451            ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:35
LTERM: ANWALAK                PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 0000 0200 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.6
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   41 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   41 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   41 | 02 / 19 / 2014
  04  BW  SPWE4 SPAV,HMA WRG,64-22,12.5MM,E  2009  +2.00   41 | VER IND: VI
  05  BW  SPBL1 SPAV,HMA BNDR LVL,64-22,19MM 2009  +1.00   41 | VER ID.: MARQUSM
  06  WB  SPBB1 SPAV,HMA BASE,64-22,25 MM    2009 +10.00   08 | --- MAXIMUM ---
  07  WB  SUB20 2A SUBBASE                   2009  +8.00   08 | AADT..:  16,003
  08  **  MILL0 MILLING (AVERAGE DEPTH)      2009  -2.50   24 | TRK %.: 09
  09  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   22 | ESAL..: 000733
  10  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   22 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

```
RMSRT451            ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:40
LTERM: ANWALAK                PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 0000 0200 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.6
  11  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1976  +1.50   18 |VERIFICATION INFO
  12  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00   18 | DATE:
  13  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   18 | 02 / 19 / 2014
  14  BW  CP200 BITUM WEARING COURSE CP-2     1948  +2.00   18 | VER IND: VI
  15  BW  UBWC0 UNKNOWN BITUM WEARING COURSE  1924  +3.00   18 | VER ID.: MARQUSM
  16  SB  CRST0 CRUSHED STONE SUBBASE         1924  +8.00   18 | --- MAXIMUM ---
                                                               | AADT..:  16,003
                                                               | TRK %.: 09
                                                               | ESAL..: 000733
                                                               | IRI...: NO TEST
                          TOTAL +21.00 PAVED +13.00

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

EXISTING PAVEMENT – SR 0023
SEG. 0420, OFF. 0000 TO 0200

NOT TO SCALE

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER
PE-075541

EXISTING PAVING HISTORY

CADD FILE: C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-DETAILS.dwg	CLIENT: UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY, 161 NEWPORT ROAD, LEOLA PA, 17540	RETTEW. 3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063. Akron-Canton, OH · St. Clairsville, OH · Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA · Berwyn, PA · Pittsburgh, PA · Williamsport, PA · State College, PA	MANAGER: ABRAHAM KING, PE	DESIGN BY: ANDREW FERKO	DRAWN BY: RODNEY ANDERSON
			DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER

PARTY CHIEF:	FIELDBOOK NO.
RICHARD LEIDY	DATA COLLECTOR
CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	6 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:44
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 0200 0780 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.6
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   24 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   24 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   24 | 02 / 19 / 2014
  04  BW  SPWE4 SPAV,HMA WRG,64-22,12.5MM,E  2009  +2.00   24 | VER IND: VI
  05  BW  SPLL1 SPAV,HMA WRGLVL,64-22, 9.5,L 2009  +1.00   24 | VER ID.: MARQUSM
  06  **  MILL0 MILLING (AVERAGE DEPTH)      2009  -2.50   24 | --- MAXIMUM ---
  07  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   22 | AADT..:  16,003
  08  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   22 | TRK %.: 09
  09  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1976  +1.50   18 | ESAL..: 000733
  10  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00   18 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:47
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 0200 0780 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.6
  11  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   18 |VERIFICATION INFO
  12  BW  CP200 BITUM WEARING COURSE CP-2     1948  +2.00   18 | DATE:
  13  BW  UBWC0 UNKNOWN BITUM WEARING COURSE  1924  +3.00   18 | 02 / 19 / 2014
  14  SB  CRST0 CRUSHED STONE SUBBASE         1924  +8.00   18 | VER IND: VI
                                                               | VER ID.: MARQUSM
                                                               | --- MAXIMUM ---
                                                               | AADT..:  16,003
                                                               | TRK %.: 09
                                                               | ESAL..: 000733
                                                               | IRI...: NO TEST
                          TOTAL +21.00 PAVED +13.00

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

EXISTING PAVEMENT – SR 0023
SEG. 0420, OFF. 0200 TO 0780

NOT TO SCALE

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:50
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 0780 0962 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.9
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   38 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   38 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   38 | 02 / 19 / 2014
  04  BW  SPWH4 SPAV,HMA WRG,64-22,12.5MM,H  2003  +1.50   38 | VER IND: VI
  05  WB  SPWH5 SPAV,HMA WRG,64-22,19.0MM,H  2003  +3.00   04 | VER ID.: MARQUSM
  06  WB  SUB20 2A SUBBASE                   2003  +7.00   04 | --- MAXIMUM ---
  07  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   22 | AADT..:  16,003
  08  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   22 | TRK %.: 09
  09  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1976  +1.50   18 | ESAL..: 000733
  10  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00   18 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:55
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 0780 0962 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.9
  11  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   18 |VERIFICATION INFO
  12  BW  CP200 BITUM WEARING COURSE CP-2     1948  +2.00   18 | DATE:
  13  BW  UBWC0 UNKNOWN BITUM WEARING COURSE  1924  +3.00   18 | 02 / 19 / 2014
  14  SB  CRST0 CRUSHED STONE SUBBASE         1924  +8.00   18 | VER IND: VI
                                                               | VER ID.: MARQUSM
                                                               | --- MAXIMUM ---
                                                               | AADT..:  16,003
                                                               | TRK %.: 09
                                                               | ESAL..: 000733
                                                               | IRI...: NO TEST
                          TOTAL +22.00 PAVED +14.00

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

EXISTING PAVEMENT – SR 0023
SEG. 0420, OFF. 0780 TO 0962

NOT TO SCALE

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:18:59
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 0962 1176 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.9
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00   40 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00   40 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00   40 | 02 / 19 / 2014
  04  BW  SPWH4 SPAV,HMA WRG,64-22,12.5MM,H  2003  +1.50   40 | VER IND: VI
  05  WB  SPWH5 SPAV,HMA WRG,64-22,19.0MM,H  2003  +3.00   09 | VER ID.: MARQUSM
  06  WB  SUB20 2A SUBBASE                   2003  +7.00   09 | --- MAXIMUM ---
  07  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50   22 | AADT..:  16,003
  08  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50   22 | TRK %.: 09
  09  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1976  +1.50   18 | ESAL..: 000733
  10  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00   18 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:04
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 0962 1176 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR   (IN)   (FT)| SN....: 4.9
  11  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00   18 |VERIFICATION INFO
  12  BW  CP200 BITUM WEARING COURSE CP-2     1948  +2.00   18 | DATE:
  13  BW  UBWC0 UNKNOWN BITUM WEARING COURSE  1924  +3.00   18 | 02 / 19 / 2014
  14  SB  CRST0 CRUSHED STONE SUBBASE         1924  +8.00   18 | VER IND: VI
                                                               | VER ID.: MARQUSM
                                                               | --- MAXIMUM ---
                                                               | AADT..:  16,003
                                                               | TRK %.: 09
                                                               | ESAL..: 000733
                                                               | IRI...: NO TEST
                          TOTAL +22.00 PAVED +14.00

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

EXISTING PAVEMENT – SR 0023
SEG. 0420, OFF. 0962 TO 1176

NOT TO SCALE

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER PE-075541

EXISTING PAVING HISTORY

CADD FILE:	CLIENT		MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-DETAILS.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
		3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	7 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:10
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 1176 1318 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR  (IN)  (FT)| SN....: 4.9
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00  40 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00  40 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00  40 | 02 / 19 / 2014
  04  BW  SPWH4 SPAV,HMA WRG,64-22,12.5MM,H  2003  +1.50  40 | VER IND: VI
  05  WL  SPWH5 SPAV,HMA WRG,64-22,19.0MM,H  2003  +3.00  04 | VER ID.: MARQUSM
  06  WL  SUB20 2A SUBBASE                   2003  +7.00  04 | --- MAXIMUM ---
  07  WR  SPWH5 SPAV,HMA WRG,64-22,19.0MM,H  2003  +3.00  09 | AADT..:  16,003
  08  WR  SUB20 2A SUBBASE                   2003  +7.00  09 | TRK %.: 09
  09  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50  22 | ESAL..: 000733
  10  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50  22 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
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```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:18
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 1176 1318 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR  (IN)  (FT)| SN....: 4.9
  11  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1976  +1.50  18 |VERIFICATION INFO
  12  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00  18 | DATE:
  13  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00  18 | 02 / 19 / 2014
  14  BW  CP200 BITUM WEARING COURSE CP-2    1948  +2.00  18 | VER IND: VI
  15  BW  UBWC0 UNKNOWN BITUM WEARING COURSE 1924  +3.00  18 | VER ID.: MARQUSM
  16  SB  CRST0 CRUSHED STONE SUBBASE        1924  +8.00  18 | --- MAXIMUM ---
                                                            | AADT..:  16,003
                                                            | TRK %.: 09
                                                            | ESAL..: 000733
                                                            | IRI...: NO TEST
                          TOTAL +22.00 PAVED +14.00

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
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EXISTING PAVEMENT – SR 0023
SEG. 0420, OFF. 1176 TO 1318

NOT TO SCALE

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:21
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 1318 1458 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR  (IN)  (FT)| SN....: 4.9
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00  34 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00  34 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00  34 | 02 / 19 / 2014
  04  BW  SPWH4 SPAV,HMA WRG,64-22,12.5MM,H  2003  +1.50  34 | VER IND: VI
  05  WB  SPWH5 SPAV,HMA WRG,64-22,19.0MM,H  2003  +3.00  02 | VER ID.: MARQUSM
  06  WB  SUB20 2A SUBBASE                   2003  +7.00  02 | --- MAXIMUM ---
  07  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50  22 | AADT..:  16,003
  08  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50  22 | TRK %.: 09
  09  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1976  +1.50  18 | ESAL..: 000733
  10  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00  18 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
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RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:26
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 1318 1458 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR  (IN)  (FT)| SN....: 4.9
  11  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00  18 |VERIFICATION INFO
  12  BW  CP200 BITUM WEARING COURSE CP-2    1948  +2.00  18 | DATE:
  13  BW  UBWC0 UNKNOWN BITUM WEARING COURSE 1924  +3.00  18 | 02 / 19 / 2014
  14  SB  CRST0 CRUSHED STONE SUBBASE        1924  +8.00  18 | VER IND: VI
                                                            | VER ID.: MARQUSM
                                                            | --- MAXIMUM ---
                                                            | AADT..:  16,003
                                                            | TRK %.: 09
                                                            | ESAL..: 000733
                                                            | IRI...: NO TEST
                          TOTAL +22.00 PAVED +14.00

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

EXISTING PAVEMENT – SR 0023
SEG. 0420, OFF. 1318 TO 1458

NOT TO SCALE

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:30
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 1458 2718 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR  (IN)  (FT)| SN....: 4.4
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00  22 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00  22 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00  22 | 02 / 19 / 2014
  04  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50  22 | VER IND: VI
  05  BW  IS2L0 SCRATCH BIT WEAR COURSE ID-2 1989   +.50  22 | VER ID.: MARQUSM
  06  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1976  +1.50  18 | --- MAXIMUM ---
  07  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00  18 | AADT..:  16,003
  08  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00  18 | TRK %.: 09
  09  BW  CP200 BITUM WEARING COURSE CP-2    1948  +2.00  18 | ESAL..: 000733
  10  BW  UBWC0 UNKNOWN BITUM WEARING COURSE 1924  +3.00  18 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

```
RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:34
LTERM: ANWALAK              PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 1458 2718 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR  (IN)  (FT)| SN....: 4.4
  11  SB  CRST0 CRUSHED STONE SUBBASE        1924  +8.00  18 |VERIFICATION INFO
                                                            | DATE:
                                                            | 02 / 19 / 2014
                                                            | VER IND: VI
                                                            | VER ID.: MARQUSM
                                                            | --- MAXIMUM ---
                                                            | AADT..:  16,003
                                                            | TRK %.: 09
                                                            | ESAL..: 000733
                                                            | IRI...: NO TEST
                          TOTAL +20.50 PAVED +12.50

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
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EXISTING PAVEMENT – SR 0023
SEG. 0420, OFF. 1458 TO 2718

NOT TO SCALE

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER
PE-075541

EXISTING PAVING HISTORY

CADD FILE: C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-DETAILS.dwg	CLIENT: UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY, 161 NEWPORT ROAD, LEOLA PA, 17540	RETTEW	3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063; Akron-Canton, OH · St. Clairsville, OH; Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA; Berwyn, PA · Pittsburgh, PA · Williamsport, PA; State College, PA	MANAGER: ABRAHAM KING, PE	DESIGN BY: ANDREW FERKO	DRAWN BY: RODNEY ANDERSON	PARTY CHIEF: RICHARD LEIDY	FIELDBOOK NO.: DATA COLLECTOR
				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO.: 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	8 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

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RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:39
LTERM: ANWALAK               PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 2718 3218 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR  (IN)  (FT)| SN....: 4.9
  01  BW  SWWE7 SPAV,WMA WRG,76-22,12.5MM,E  2015  +2.00  22 |VERIFICATION INFO
  02  BW  SWS01 SPAV,WMA WRGSCRC,64-22,9.5MM 2015  +1.00  22 | DATE:
  03  **  MILL0 MILLING (AVERAGE DEPTH)      2015  -3.00  22 | 02 / 19 / 2014
  04  BW  ID2E0 BITUMINOUS WEARING CRSE ID-2 1989  +1.50  22 | VER IND: VI
  05  BB  ID2B0 ID-2 BINDER COURSE           1989  +2.00  22 | VER ID.: MARQUSM
  06  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1976  +1.50  18 | --- MAXIMUM ---
  07  BW  ID2U0 BITUMINOUS WEARING CRSE ID-2 1962  +3.00  18 | AADT..:  16,003
  08  BW  FJ1U0 BITUMINOUS WEARING CRSE FJ-1 1962  +1.00  18 | TRK %.: 09
  09  BW  CP200 BITUM WEARING COURSE CP-2    1948  +2.00  18 | ESAL..: 000733
  10  BW  UBWC0 UNKNOWN BITUM WEARING COURSE 1924  +3.00  18 | IRI...: NO TEST
                          TOTAL 000000 PAVED 000000

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS

RMSRT451          ROADWAY MANAGEMENT INFORMATION SYSTEM  01/02/2026  09:19:45
LTERM: ANWALAK               PAVEMENT HISTORY

                        SEGMENT  OFFSET  -------LANES-------|- NOTES:  NO   -
COUNTY NO/NAME     SR   NO. LENG FROM  TO THRU PARK TURN BIKE|--RANGE  TO---
-------------------------------------------------------------|SEGMNT:  N.A.
36 LANCASTER      0023 0420 3291 2718 3218 02    N    N    N |OFFSET:  N.A.
S                                                           | SURF..: 61
E                                                 DEPTH WIDTH| TRTMT.: H
L NO TYPE CODE  -----LAYER DESCRIPTION------ YEAR  (IN)  (FT)| SN....: 4.9
  11  SB  CRST0 CRUSHED STONE SUBBASE        1924  +8.00  18 |VERIFICATION INFO
                                                            | DATE:
                                                            | 02 / 19 / 2014
                                                            | VER IND: VI
                                                            | VER ID.: MARQUSM
                                                            | --- MAXIMUM ---
                                                            | AADT..:  16,003
                                                            | TRK %.: 09
                                                            | ESAL..: 000733
                                                            | IRI...: NO TEST
                          TOTAL +22.00 PAVED +14.00

ACTION: I   A B D E F G H I J K N P Q R S U UO V X Y
MESSAGES: 212 PRESS  ENTER  TO DISPLAY MORE RECORDS
```

EXISTING PAVEMENT – SR 0023
SEG. 0420, OFF. 3291 TO 3218

NOT TO SCALE

PENNDOT PAVING

A. WEARING – SUPERPAVE ASPHALT MIXTURE DESIGN, WEARING COURSE, PG 64E–22, 10.0 TO < 30.0 MILLION ESALS, 12.5 MM MIX, 2.0" DEPTH, SRL–E

B. BINDER – SUPERPAVE ASPHALT MIXTURE DESIGN, BINDER COURSE, PG 64S–22, 10.0 TO < 30.0 MILLION ESALS, 19.0 MM MIX, 2.5" DEPTH

C. BASE – SUPERPAVE ASPHALT MIXTURE DESIGN, BASE COURSE, PG 64S–22, 10.0 TO < 30.0 MILLION ESALS, 25.0 MM MIX, 5.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

D. SUBBASE – 2A STONE, 6.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

E. TOP SOIL AND SEED – 2" OF TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

F. SIDEWALK RESTORATION – 4" CONCRETE SIDEWALK 3,500 PSI AT 28 DAYS WITH 6" AGGREGATE SUBBASE.

G. DRIVEWAY APRON RESTORATION – 6" CONCRETE DRIVEWAY APRON 3,500 PSI AT 28 DAYS WITH W4 OR W4.5 WIRE AT 6" CENTERS AT HALF DEPTH OF CONCRETE, WITH 6" AGGREGATE SUBBASE.

H. MILL AND OVERLAY – MILL 2.0" OF EXISTING PAVEMENT, PLACE SUPERPAVE ASPHALT DESIGN MIXTURE DESIGN WITH SUPERPAVE ASPHALT DESIGN WEARING COURSE, PG 64E–22, 10.0 TO < 30.0 MILLION ESALS, 12.5 MM MIX, 2.0" DEPTH, SRL–E

---------B--------- TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

LAWN RESTORATION DETAIL
(WITHIN PENNDOT LEGAL RIGHT OF WAY)

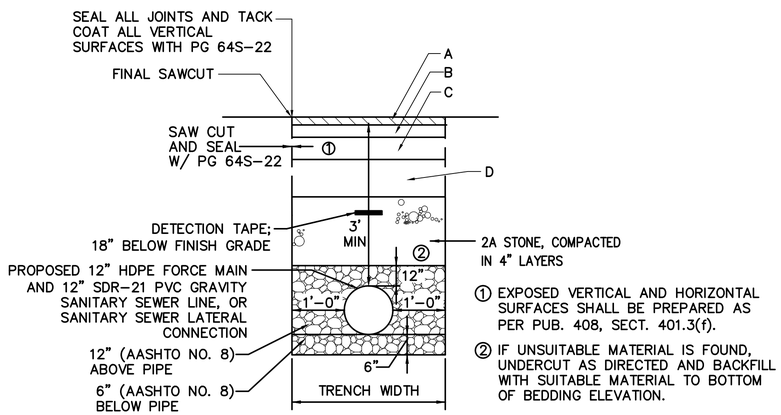
NOT TO SCALE

VERTICAL SEPARATION DETAIL

NOT TO SCALE

NOTES

- ALL VERTICAL CUTS SHALL BE SAWCUT ONLY.
- MATERIAL AND PLACEMENT FOR COARSE AND FINE AGGREGATES SHALL BE IN ACCORDANCE WITH PENNDOT SPECIFICATIONS PUBLICATIONS 408, LATEST EDITION.
- PAVEMENT MARKINGS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPAINTED IN KIND.

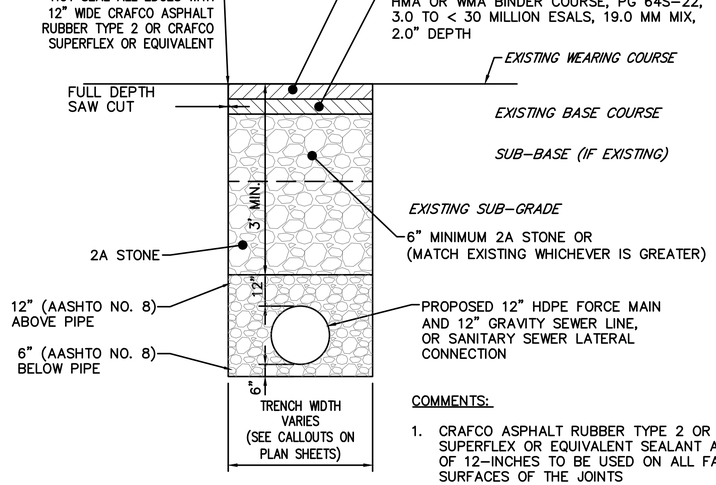


① EXPOSED VERTICAL AND HORIZONTAL SURFACES SHALL BE PREPARED AS PER PUB. 408, SECT. 401.3(f).

② IF UNSUITABLE MATERIAL IS FOUND, UNDERCUT AS DIRECTED AND BACKFILL WITH SUITABLE MATERIAL TO BOTTOM OF BEDDING ELEVATION.

WEST MAIN STREET SR 0023
NEWPORT ROAD SR 0772
PAVEMENT RESTORATION DETAIL

NOT TO SCALE



COMMENTS:

1. CRAFCO ASPHALT RUBBER TYPE 2 OR CRAFCO SUPERFLEX OR EQUIVALENT SEALANT AT A WIDTH OF 12–INCHES TO BE USED ON ALL FACES AND SURFACES OF THE JOINTS

TEMPORARY PAVEMENT RESTORATION

NOT TO SCALE

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER PE–075541

EXISTING PAVING HISTORY / DETAILS

CADD FILE:	CLIENT		MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139–TR–DETAILS.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW.	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
		3020 Columbia Ave., Lancaster, PA 17603 (717) 394–3721 · Fax (717) 394–1063 Akron–Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	9 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

DROP-OFFS NOTES:

THE FOLLOWING CONDITIONS AND TREATMENTS APPLY ONLY TO CONTINUOUS AND INTERMITTENT DROP-OFFS CREATED BY CONSTRUCTION, MAINTENANCE, OR PERMIT/UTILITY OPERATIONS. IF THE TREATMENTS IN THIS SECTION CANNOT BE MET DUE TO CONSTRUCTABILITY-RELATED ISSUES, OBTAIN APPROVAL OF AN ALTERNATE DROP-OFF TREATMENT METHOD, IN WRITING, FROM THE BUREAU OF PROJECT DELIVERY BEFORE IMPLEMENTATION.

1. THE FOLLOWING ARE NOT CONSIDERED DROP-OFFS:

   - DRAINAGE DITCHES.
   - COMPACTED EARTHEN EMBANKMENTS TAPERED AT 3:1 OR FLATTER.
   - ANY AREA ≤ 2 INCHES BELOW GRADE AND > 12 FEET AWAY FROM ACTIVE TRAVEL LANE.
   - ANY AREA BEHIND GUIDE RAIL, BARRIER, OR CURB.
   - ANY AREA OUTSIDE RIGHT-OF-WAY.
   - OPEN AREAS WHERE WORKERS ARE PRESENT AND WHILE WORK IS IN ACTIVE PROGRESS.

2. GENERAL CONDITIONS:

   - THE DURATION OF THE DROP-OFF CONDITION STARTS AT THE END OF THE SHIFT IN WHICH THE DROP-OFF CONDITION WAS CREATED.
   - PLACE ALL CHANNELIZING DEVICES AT THE SAME GRADE AS THE TRAVEL LANE AND AS CLOSE TO THE EDGE LINE AS POSSIBLE.
   - AS AN OPTION, AN APPROVED TYPE C STEADY BURN LIGHT MAY BE PLACED ON EACH CHANNELIZING DEVICE THROUGHOUT THE DROP-OFF CONDITION UNLESS OTHERWISE SPECIFIED IN CONDITION 2.
   - FOR INTERMITTENT DROP-OFF CONDITIONS, PLACE AT LEAST 3 CHANNELIZING DEVICES OR A TYPE III BARRICADE TRANSVERSELY IN FRONT OF EACH DROP-OFF CONDITION.
   - WHEN APPLICABLE, INSTALL UNEVEN LANE SIGNS (W8-11), LOW SHOULDER SIGNS (W8-9), OR NO GUIDE RAIL SIGNS (W21-9A) AT INTERVALS NOT TO EXCEED 1/2 MILE THROUGHOUT THE DROP-OFF CONDITION.

CONDITION 1 - DROP-OFFS ≤ 2 INCHES BELOW GRADE AND ≤ 12 FEET AWAY FROM ACTIVE TRAVEL LANE

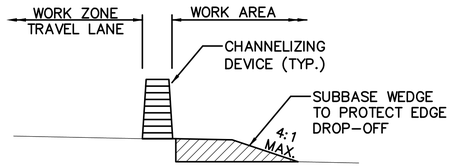
DROP-OFF LOCATION	TREATMENT
BETWEEN ACTIVE TRAVEL LANE & NON-ACTIVE TRAVEL LANE OR SHOULDER	• PLACE CHANNELIZING DEVICES THROUGHOUT DROP-OFF CONDITION. SPACE ALL CHANNELIZING DEVICES AT A MAXIMUM DISTANCE IN FEET, EQUAL TO TWO TIMES THE POSTED SPEED LIMIT IN MILES PER HOUR THROUGHOUT A CONTINUOUS OR INTERMITTENT DROP-OFF CONDITION, UNLESS OTHERWISE DIRECTED.
BETWEEN TWO ACTIVE TRAVEL LANES	• INSTALL LONGITUDINAL NOTCHED WEDGE JOINT DURING PAVING OPERATIONS IN ACCORDANCE WITH RC-28M AND, DURING MILLING OPERATIONS, MILL A 3:1 WEDGE. FOR TEMPORARY OVERLAY TRANSITIONS DURING PAVING AND MILLING OPERATIONS FOLLOW RC-28M EXCEPT FOR THE PAVING NOTCH, AND FEATHER TRANSITION EDGE AS MUCH AS MIX WILL ALLOW. **OR** END ALL LANES AT THE SAME GRADE LONGITUDINALLY, INSTALL TEMPORARY OVERLAY TRANSITIONS DURING PAVING AND MILLING OPERATIONS IN ACCORDANCE WITH RC-28M EXCEPT FOR THE PAVING NOTCH, AND FEATHER TRANSITION EDGE AS MUCH AS MIX WILL ALLOW.

CONDITION 2 -DROP-OFFS > 2 INCHES BELOW GRADE

DISTANCE FROM ACTIVE TRAVEL LANE	DURATION CONDITION EXISTS	DROP-OFF HEIGHT		
		>2 INCHES TO ≤4 INCHES	>4 INCHES TO ≤2 FEET	>2 FEET
		TREATMENT		
≤4 FEET AWAY	≤48 HOURS	(A) OR (B)(D)	(A) OR (B)(E) OR (C)	(A) OR (C)
	>48 HOURS			
>4 FEET TO ≤12 FEET AWAY	≤48 HOURS	(D)	(E)	(A) OR (B)(E)(F) OR (C)
	>48 HOURS	(A) OR (B)(D)	(A) OR (B)(E)	
>12 FEET AWAY	≤48 HOURS	(D)	(E)	(E)(F)
	>48 HOURS			

FOOTNOTES:

A. PLACE SUITABLE MATERIAL TO GRADE AND COMPACT TO NON-MOVEMENT.
B. INSTALL A 3:1 SLOPE WITH SUITABLE MATERIAL AND COMPACT TO NON-MOVEMENT.
C. INSTALL TEMPORARY BARRIER.
D. PLACE CHANNELIZING DEVICES STARTING AT 120 FEET IN ADVANCE OF THE DROP-OFF CONDITION. SPACE ALL CHANNELIZING DEVICES AT A MAXIMUM DISTANCE IN FEET EQUAL TO TWO TIMES THE POSTED SPEED LIMIT IN MILES PER HOUR THROUGHOUT A CONTINUOUS OR INTERMITTENT DROP-OFF CONDITION, UNLESS OTHERWISE DIRECTED.
E. PLACE CHANNELIZING DEVICES STARTING AT 120 FEET IN ADVANCE OF THE DROP-OFF CONDITION. SPACE ALL CHANNELIZING DEVICES AT A MAXIMUM DISTANCE IN FEET EQUAL TO THE POSTED SPEED LIMIT IN MILES PER HOUR THROUGHOUT A CONTINUOUS OR INTERMITTENT DROP-OFF CONDITION, UNLESS OTHERWISE DIRECTED.
F. PLACE AN APPROVED TYPE C STEADY BURN LIGHT ON EACH CHANNELIZING DEVICE THROUGHOUT DROP-OFF CONDITION.



NOTES:

1. CHANNELIZING DEVICES AND WEDGE ARE NOT REQUIRED WHEN EDGE OF DROPOFF HEIGHT IS LESS THAN 2".
2. IF A DROPOFF IS GREATER THAN 2" AND THE DISTANCE FROM THE DROPOFF TO THE EDGE OF THE TRAVEL LANE IS SUCH THAT CHANNELIZING DEVICES MUST BE PLACED BELOW GRADE, POSITION THE DEVICES ON A STABLE PLATFORM SO THAT BOTTOMS ARE AT GRADE.

EDGE DROP-OFF DETAIL
NOT TO SCALE

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER PE-075541

NOTES / DETAILS

CADD FILE:	CLIENT		MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-DETAILS.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
		3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	10 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

PIPE CHART

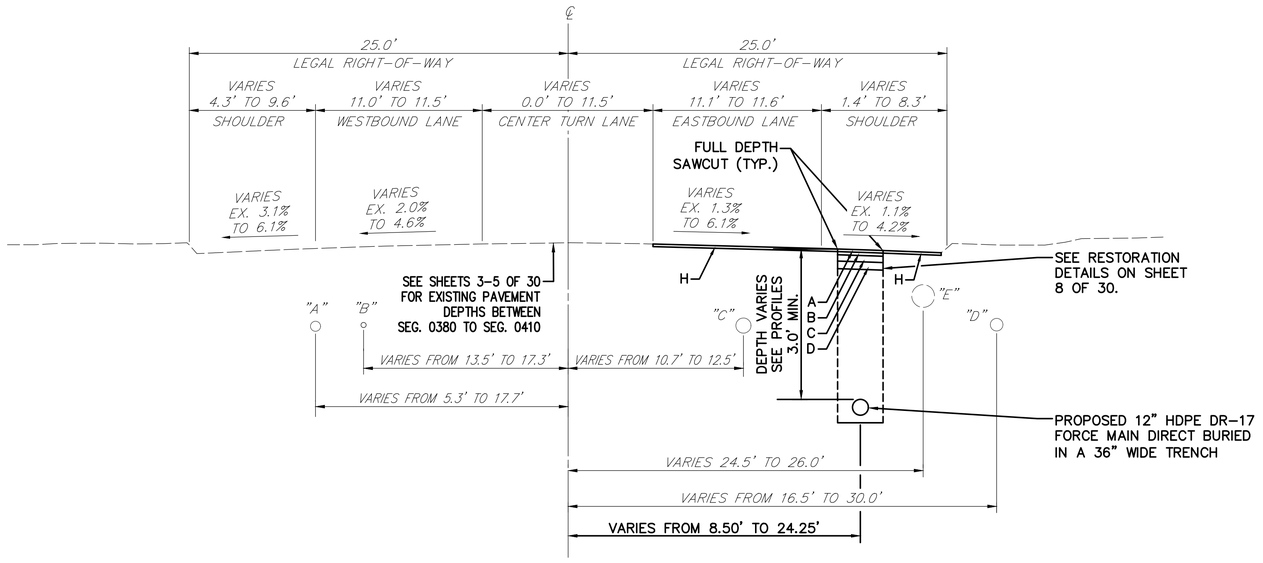
"A" – EXISTING WATER MAIN, 3' MIN COVER

"B" – EXISTING UNDERGROUND COMMUNICATION LINE, 3' MIN COVER

"C" – EXISTING 12" ST GAS MAIN, 3' MIN COVER

"D" – EXISTING 10" DI FORCE MAIN, 3' MIN COVER (TO BE ABANDONED IN PLACE)

"E" – EXISTING 18" RCP STORM PIPE, 3' MIN COVER (FROM STATION 346+87.13 TO 348+43.00)



TYPICAL SECTION
STATION 346+87.13 TO 366+73.09
SEG. 0380, OFF. 1347 TO SEG 0390, OFF. 1881
STATION 368+43.75 TO STATION 370+65.90
SEG. 0390, OFF. 2052 TO SEG. 0390, OFF. 2274
STATION 375+24.58 TO STATION 396+30.96
SEG. 0390, OFF. 2274 TO SEG. 0410, OFF. 0114
SR 0023 12" HDPE DR-17 FORCE MAIN (DIRECT BURIED IN 36" TRENCH)

NOT TO SCALE

NOTES

1. EXCEPT FOR CROSSING, NOT ALL EXISTING UTILITIES ARE SHOWN IN THE TYPICAL SECTIONS. ONLY THE UTILITIES WITHIN PROXIMITY OF THE PROPOSED FORCE MAIN ARE ILLUSTRATED. ALL UTILITIES ARE HOWEVER ILLUSTRATED ON ALL PLAN VIEWS.
2. IF AN OPENING IS MADE WITHIN A BITUMINOUS OR CONCRETE PAVEMENT WITHIN 3 FEET FROM THE EDGE OF PAVEMENT OR OTHER LONGITUDINAL JOINT OR OPENING, THE SURFACE RESTORATION SHALL BE EXTENDED TO THE EDGE OF THE PAVEMENT OR OTHER LONGITUDINAL JOINT OR OPENING (67 PA CODE, CHAPTER 459.8)
3. NTT/CNTT ASPHALT TACK COAT TO BE APPLIED BETWEEN EACH PAVEMENT LAYER
4. SOURCE OF EXISTING PAVEMENT HISTORY: PENNDOT PAVEMENT HISTORY ARCHIVE. SEE SHEETS 3-8 OF 30 FOR EXISTING PAVEMENT DEPTHS.
5. INSTALLATION OF THE PROPOSED FORCE MAIN FROM STATION 396+31.53 (SEG. 0410, OFF. 0114) TO STATION 400+01.91 (SEG. 0410, OFF. 0485) WILL BE COMPLETED UNDER PENNDOT PROJECT ECMS NO. 110556 (CURB AND SIDEWALK INSTALLATION). SERVICE LATERALS CONNECTIONS LOCATIONS SHOWN GRAPHICALLY AS THIS PROJECT WILL BE CONSTRUCTED PRIOR TO THE FORCE MAIN PROJECT UNDER THIS APPLICATION.
6. THE PAVING RESTORATION SHOWN ON THE PLANS IS LIMITED TO TRENCH RESTORATION ONLY. A SEPARATE PENNDOT PAVING PROJECT IS PLANNED WITHIN THE LIMITS OF WORK AND WILL BE COMPLETED FOLLOWING THE FORCEMAIN INSTALLATION. COORDINATION WITH THE PENNDOT DISTRICT HAS BEEN COMPLETED, AND THESE PLANS REFLECT THAT COORDINATION.

PENNDOT PAVING

A. WEARING – SUPERPAVE ASPHALT MIXTURE DESIGN, WEARING COURSE, PG 64E-22, 10.0 TO < 30.0 MILLION ESALS, 12.5 MM MIX, 2.0" DEPTH, SRL-E

B. BINDER – SUPERPAVE ASPHALT MIXTURE DESIGN, BINDER COURSE, PG 64S-22, 10.0 TO < 30.0 MILLION ESALS, 19.0 MM MIX, 2.5" DEPTH

C. BASE – SUPERPAVE ASPHALT MIXTURE DESIGN, BASE COURSE, PG 64S-22, 10.0 TO < 30.0 MILLION ESALS, 25.0 MM MIX, 5.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

D. SUBBASE – 2A STONE, 6.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

E. TOP SOIL AND SEED – 2" OF TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

F. SIDEWALK RESTORATION – 4" CONCRETE SIDEWALK 3,500 PSI AT 28 DAYS WITH 6" AGGREGATE SUBBASE.

G. DRIVEWAY APRON RESTORATION – 6" CONCRETE DRIVEWAY APRON 3,500 PSI AT 28 DAYS WITH W4 OR W4.5 WIRE AT 6" CENTERS AT HALF DEPTH OF CONCRETE, WITH 6" AGGREGATE SUBBASE.

H. MILL AND OVERLAY – MILL 2.0" OF EXISTING PAVEMENT, PLACE SUPERPAVE ASPHALT DESIGN MIXTURE DESIGN WITH SUPERPAVE ASPHALT DESIGN WEARING COURSE, PG 64E-22, 10.0 TO < 30.0 MILLION ESALS, 12.5 MM MIX, 2.0" DEPTH, SRL-E

---------B--------- TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER PE-075541

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(UNLESS OTHERWISE NOTED)

TYPICAL SECTIONS

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C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-TYPICALS.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW.	3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	11 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

PIPE CHART

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"C" – EXISTING 12" ST GAS MAIN, 3' MIN COVER

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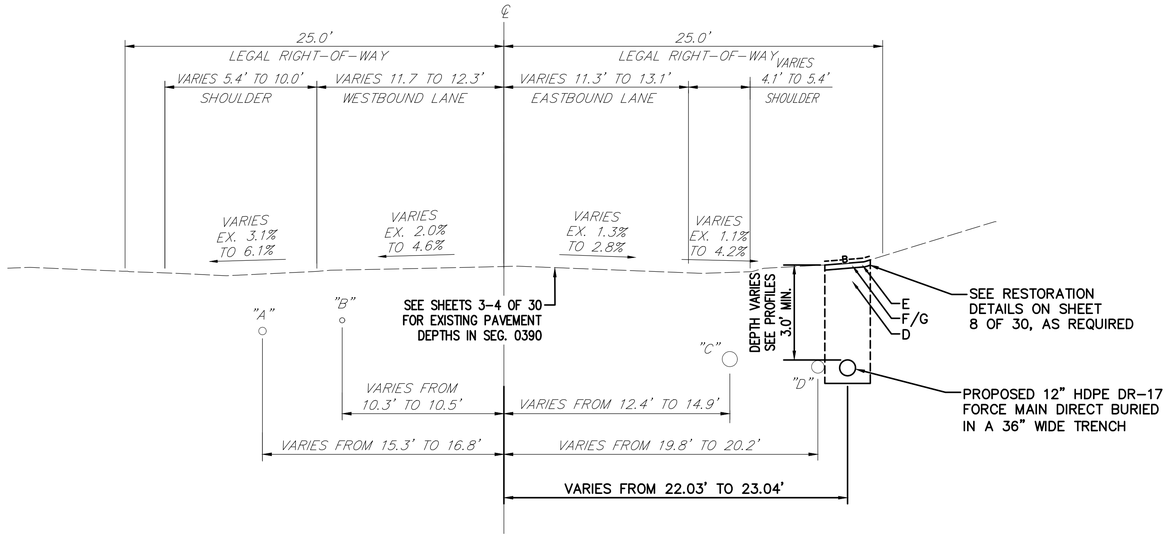

TYPICAL SECTION
STATION 366+73.09 TO 368+43.75
SEG. 0390, OFF. 1881 TO SEG. 0390, OFF. 2052 &
STATION 370+65.84 TO 375+24.58
SEG. 0390, OFF. 2273 TO SEG. 0390, OFF. 2755
SR 0023 12" HDPE DR-17 FORCE MAIN (DIRECT BURIED IN 36" TRENCH)

NOT TO SCALE

NOTES

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4. SOURCE OF EXISTING PAVEMENT HISTORY: PENNDOT PAVEMENT HISTORY ARCHIVE. SEE SHEETS 3-8 OF 30 FOR EXISTING PAVEMENT DEPTHS.
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PENNDOT PAVING

A. WEARING – SUPERPAVE ASPHALT MIXTURE DESIGN, WEARING COURSE, PG 64E-22, 10.0 TO < 30.0 MILLION ESALS, 12.5 MM MIX, 2.0" DEPTH, SRL-E

B. BINDER – SUPERPAVE ASPHALT MIXTURE DESIGN, BINDER COURSE, PG 64S-22, 10.0 TO < 30.0 MILLION ESALS, 19.0 MM MIX, 2.5" DEPTH

C. BASE – SUPERPAVE ASPHALT MIXTURE DESIGN, BASE COURSE, PG 64S-22, 10.0 TO < 30.0 MILLION ESALS, 25.0 MM MIX, 5.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

D. SUBBASE – 2A STONE, 6.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

E. TOP SOIL AND SEED – 2" OF TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

F. SIDEWALK RESTORATION – 4" CONCRETE SIDEWALK 3,500 PSI AT 28 DAYS WITH 6" AGGREGATE SUBBASE.

G. DRIVEWAY APRON RESTORATION – 6" CONCRETE DRIVEWAY APRON 3,500 PSI AT 28 DAYS WITH W4 OR W4.5 WIRE AT 6" CENTERS AT HALF DEPTH OF CONCRETE, WITH 6" AGGREGATE SUBBASE.

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---------B--------- TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER
PE-075541

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TYPICAL SECTIONS

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CLIENT
UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY
161 NEWPORT ROAD
LEOLA PA, 17540

RETTEW.

3020 Columbia Ave., Lancaster, PA 17603
(717) 394-3721 · Fax (717) 394-1063
Akron-Canton, OH · St. Clairsville, OH
Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA
Berwyn, PA · Pittsburgh, PA · Williamsport, PA
State College, PA

MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	12 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

PIPE CHART

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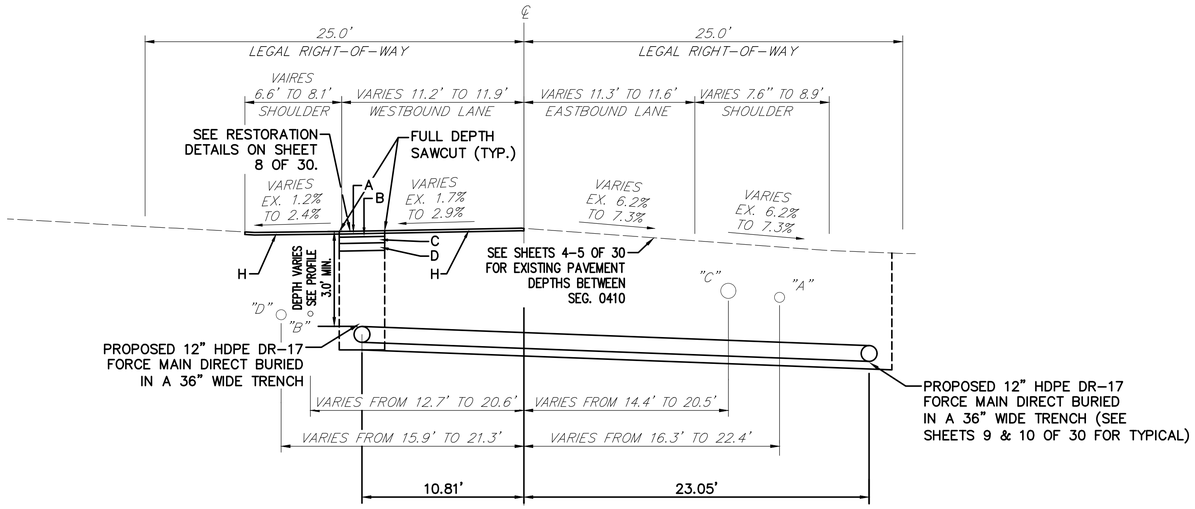
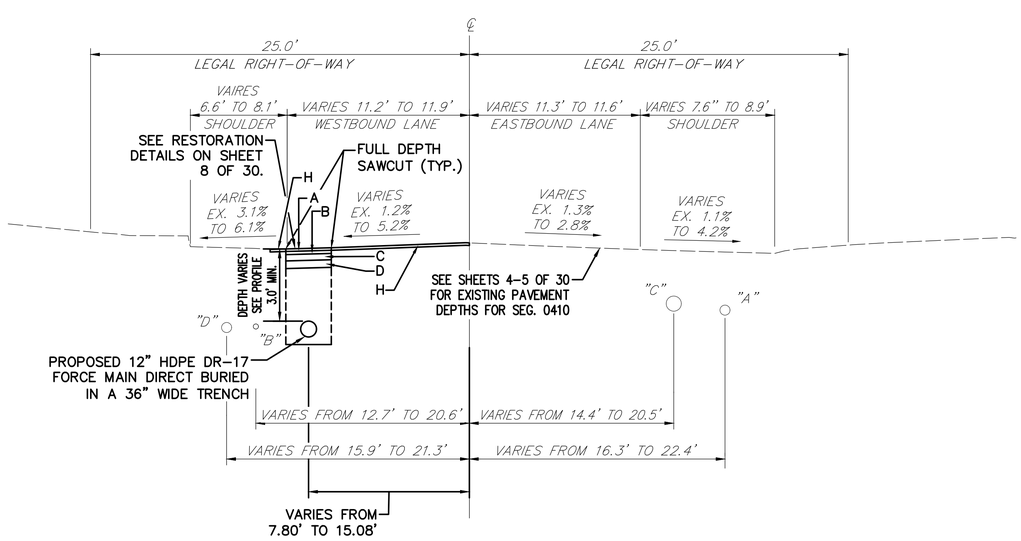


TYPICAL SECTION
STATION 399+98.78 TO 400+33.83
SEG. 0410, OFF. 0481 TO SEG. 0410, OFF. 0516
SR 0023 12" HDPE DR-17 FORCE MAIN CROSSING (DIRECT BURIED IN 36" TRENCH)

NOT TO SCALE



TYPICAL SECTION
STATION 400+33.41 TO 414+69.43
SEG. 0410, OFF. 1881 TO SEG. 0410, OFF. 1952 &
STATION 417+32.58 TO 418+72.28
SEG. 0410, OFF. 2215 TO SEG. 0410, OFF. 2355
SR 0023 12" HDPE DR-17 FORCE MAIN (DIRECT BURIED IN 36" TRENCH)

NOT TO SCALE

NOTES

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PENNDOT PAVING

A. WEARING – SUPERPAVE ASPHALT MIXTURE DESIGN, WEARING COURSE, PG 64E-22, 10.0 TO < 30.0 MILLION ESALS, 12.5 MM MIX, 2.0" DEPTH, SRL-E

B. BINDER – SUPERPAVE ASPHALT MIXTURE DESIGN, BINDER COURSE, PG 64S-22, 10.0 TO < 30.0 MILLION ESALS, 19.0 MM MIX, 2.5" DEPTH

C. BASE – SUPERPAVE ASPHALT MIXTURE DESIGN, BASE COURSE, PG 64S-22, 10.0 TO < 30.0 MILLION ESALS, 25.0 MM MIX, 5.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

D. SUBBASE – 2A STONE, 6.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

E. TOP SOIL AND SEED – 2" OF TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

F. SIDEWALK RESTORATION – 4" CONCRETE SIDEWALK 3,500 PSI AT 28 DAYS WITH 6" AGGREGATE SUBBASE.

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---------B--------- TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

RETTEW ASSOCIATES, INC.

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TYPICAL SECTIONS

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C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-TYPICALS.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW	3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	13 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

PIPE CHART

"A" – EXISTING WATER MAIN, 3' MIN COVER

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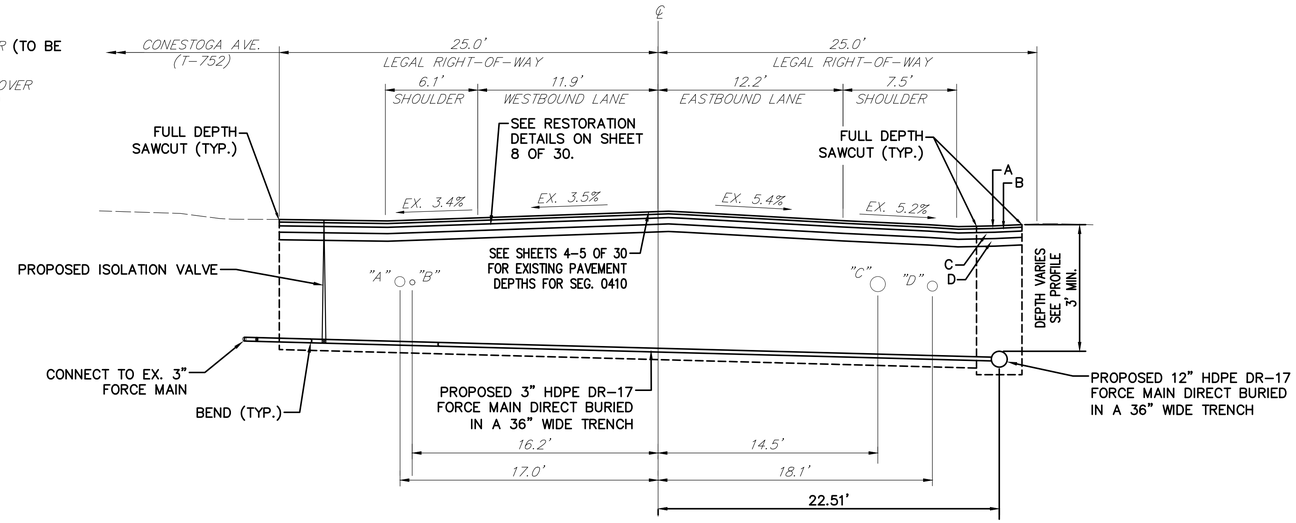
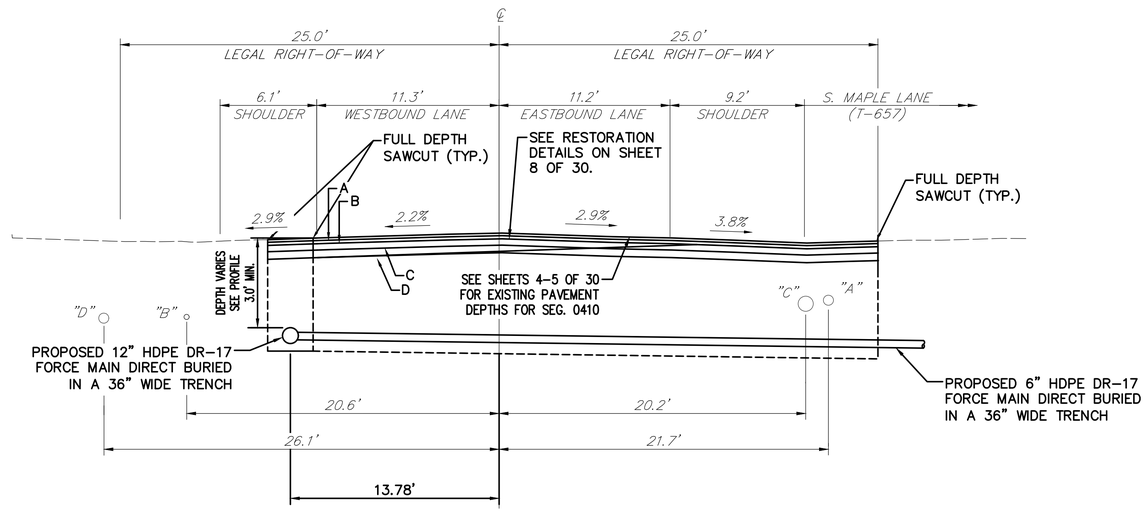
"E" – EXISTING 12" SLCPP STORM PIPE, 1' MIN COVER (FROM STATION 422+00.00 TO 424+28.98)



TYPICAL SECTION
STATION 399+01.80 TO 399+12.08
SEG. 0410, OFF. 0384 TO SEG. 0410, OFF. 0395
SR 0023 3" HDPE DR-17 FORCE MAIN TO 12" HDPE DR-17 FORCE MAIN
(DIRECT BURIED IN 36" TRENCH)

NOT TO SCALE



TYPICAL SECTION
STATION 417+70.14 TO 417+74.00
SEG. 0410, OFF. 2253 TO SEG. 0410, OFF. 2257
SR 0023 6" HDPE DR-17 FORCE MAIN TO 12" HDPE DR-17 FORCE MAIN
(DIRECT BURIED IN 36" TRENCH)

NOT TO SCALE

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RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
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TYPICAL SECTIONS

CADD FILE:	CLIENT			MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
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				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	14 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

PIPE CHART

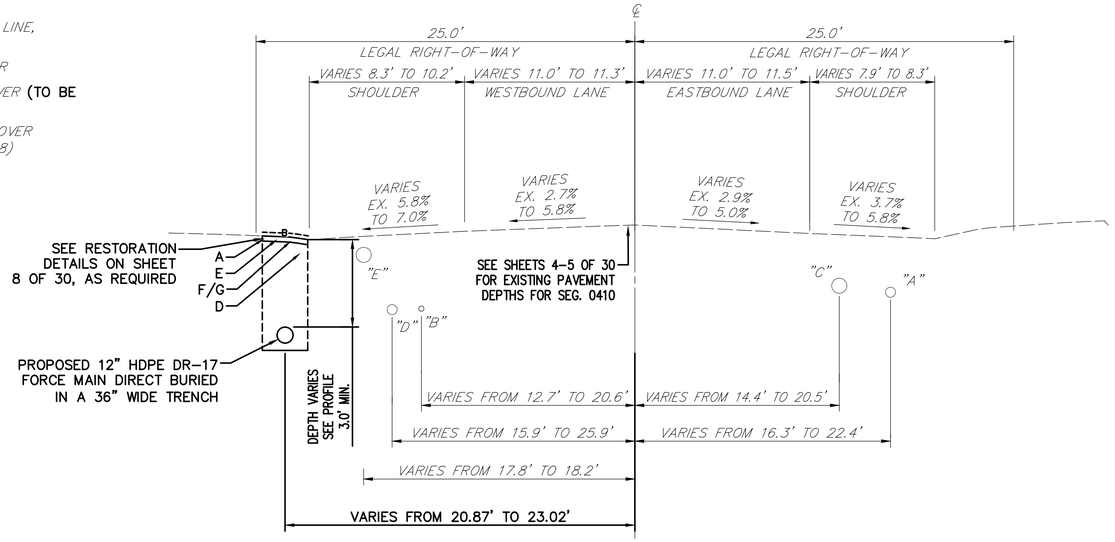
"A" – EXISTING WATER MAIN, 3' MIN COVER

"B" – EXISTING UNDERGROUND COMMUNICATION LINE, 3' MIN COVER

"C" – EXISTING 12" ST GAS MAIN, 3' MIN COVER

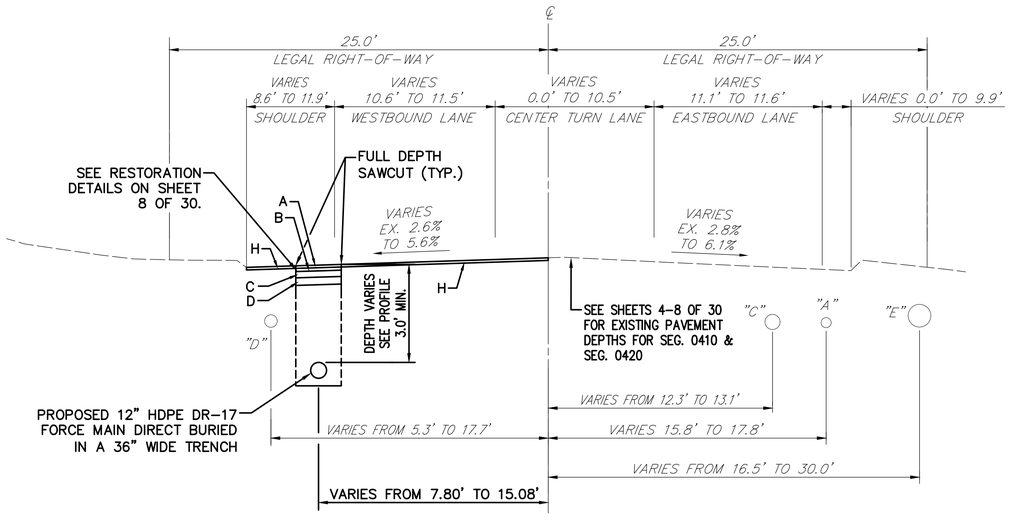
"D" – EXISTING 10" DI FORCE MAIN, 3' MIN COVER (TO BE ABANDONED IN PLACE)

"E" – EXISTING 18" RCP STORM PIPE, 3' MIN COVER (FROM STATION 422+00.00 TO 424+28.98)



TYPICAL SECTION
STATION 414+69.43 TO 417+23.56
SEG. 0410, OFF. 1952 TO SEG. 0410, OFF. 2206 &
STATION 418+72.28 TO 422+45.17
SEG. 0410, OFF. 2355 TO SEG. 0410, OFF. 2728
SR 0023 12" HDPE DR-17 FORCE MAIN (DIRECT BURIED IN 36" TRENCH)

NOT TO SCALE



TYPICAL SECTION
STATION 422+54.33 TO 452+67.72
SEG. 0410, OFF. 2737 TO SEG. 0420, OFF. 2754
SR 0023 12" HDPE DR-17 FORCE MAIN (DIRECT BURIED IN 36" TRENCH)

NOT TO SCALE

NOTES

1. EXCEPT FOR CROSSING, NOT ALL EXISTING UTILITIES ARE SHOWN IN THE TYPICAL SECTIONS. ONLY THE UTILITIES WITHIN PROXIMITY OF THE PROPOSED FORCE MAIN ARE ILLUSTRATED. ALL UTILITIES ARE HOWEVER ILLUSTRATED ON ALL PLAN VIEWS.
2. IF AN OPENING IS MADE WITHIN A BITUMINOUS OR CONCRETE PAVEMENT WITHIN 3 FEET FROM THE EDGE OF PAVEMENT OR OTHER LONGITUDINAL JOINT OR OPENING, THE SURFACE RESTORATION SHALL BE EXTENDED TO THE EDGE OF THE PAVEMENT OR OTHER LONGITUDINAL JOINT OR OPENING (67 PA CODE, CHAPTER 459.8)
3. NTT/CNTT ASPHALT TACK COAT TO BE APPLIED BETWEEN EACH PAVEMENT LAYER
4. SOURCE OF EXISTING PAVEMENT HISTORY: PENNDOT PAVEMENT HISTORY ARCHIVE. SEE SHEETS 3-8 OF 30 FOR EXISTING PAVEMENT DEPTHS.
5. INSTALLATION OF THE PROPOSED FORCE MAIN FROM STATION 396+31.53 (SEG. 0410, OFF. 0114) TO STATION 400+01.91 (SEG. 0410, OFF. 0485) WILL BE COMPLETED UNDER PENNDOT PROJECT ECMS NO. 110556 (CURB AND SIDEWALK INSTALLATION). SERVICE LATERALS CONNECTIONS LOCATIONS SHOWN GRAPHICALLY AS THIS PROJECT WILL BE CONSTRUCTED PRIOR TO THE FORCE MAIN PROJECT UNDER THIS APPLICATION.
6. THE PAVING RESTORATION SHOWN ON THE PLANS IS LIMITED TO TRENCH RESTORATION ONLY. A SEPARATE PENNDOT PAVING PROJECT IS PLANNED WITHIN THE LIMITS OF WORK AND WILL BE COMPLETED FOLLOWING THE FORCEMAIN INSTALLATION. COORDINATION WITH THE PENNDOT DISTRICT HAS BEEN COMPLETED, AND THESE PLANS REFLECT THAT COORDINATION.

PENNDOT PAVING

A. WEARING – SUPERPAVE ASPHALT MIXTURE DESIGN, WEARING COURSE, PG 64E-22, 10.0 TO < 30.0 MILLION ESALS, 12.5 MM MIX, 2.0" DEPTH, SRL-E

B. BINDER – SUPERPAVE ASPHALT MIXTURE DESIGN, BINDER COURSE, PG 64S-22, 10.0 TO < 30.0 MILLION ESALS, 19.0 MM MIX, 2.5" DEPTH

C. BASE – SUPERPAVE ASPHALT MIXTURE DESIGN, BASE COURSE, PG 64S-22, 10.0 TO < 30.0 MILLION ESALS, 25.0 MM MIX, 5.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

D. SUBBASE – 2A STONE, 6.0" DEPTH OR MATCH EXISTING, WHICHEVER IS GREATER

E. TOP SOIL AND SEED – 2" OF TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

F. SIDEWALK RESTORATION – 4" CONCRETE SIDEWALK 3,500 PSI AT 28 DAYS WITH 6" AGGREGATE SUBBASE.

G. DRIVEWAY APRON RESTORATION – 6" CONCRETE DRIVEWAY APRON 3,500 PSI AT 28 DAYS WITH W4 OR W4.5 WIRE AT 6" CENTERS AT HALF DEPTH OF CONCRETE, WITH 6" AGGREGATE SUBBASE.

H. MILL AND OVERLAY – MILL 2.0" OF EXISTING PAVEMENT, PLACE SUPERPAVE ASPHALT DESIGN MIXTURE DESIGN WITH SUPERPAVE ASPHALT DESIGN WEARING COURSE, PG 64E-22, 10.0 TO < 30.0 MILLION ESALS, 12.5 MM MIX, 2.0" DEPTH, SRL-E

---------B--------- TOP SOIL AND SEEDING SUPPLEMENTS. UTILIZE PENNDOT SEED FORMULA B TURFGRASS MIXTURE ON 4" OF TOPSOIL.

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER
PE-075541

SCALE

NOT TO SCALE
(UNLESS OTHERWISE NOTED)

TYPICAL SECTIONS

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C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-TYPICALS.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW	3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	RICHARD LEIDY	DATA COLLECTOR
				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	15 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

TIE SEWER LATERAL INTO GRAVITY MAIN

23 L.F. OF 12" SDR-21 PVC GRAVITY SEWER @ 0.26%

SEG. 0380 OFF. 1452= SEG. 0390 OFF. 0000

SEG 0380 OFF 1355

SEG 0380 OFF 1347

SEG 0380 OFF 1368

SEG 0380 OFF 1373

WEST MAIN STREET (SR 0023)

SEG 0390 OFF 0218

SEG 0390 OFF 0224

SEG 0390 OFF 0333

SEG 0390 OFF 0325

SEG 0390 OFF 0350

SEG 0390 OFF 0359

QUARRY ROAD SR 1003

SEG. 0390 OFF. 0622

HELLERS CHURCH SR 1003

SERVICE LATERAL BALL VALVE 4' X 4' PIT SEG. 0390, OFF. 0090 REPLACE CURB AND SIDEWALK (SEE NOTE)

SERVICE LATERAL BALL VALVE 4' X 4' PIT SEG. 0390, OFF. 0147 REPLACE CURB AND SIDEWALK. (SEE NOTE)

SERVICE LATERAL BALL VALVE 4' X 4' PIT SEG. 0390, OFF. 0292

4' X 4' PIT RESTORE AS REQUIRED (TYP.)

SERVICE LATERAL BALL VALVE 4' X 4' PIT SEG. 0390, OFF. 0529 REPLACE CURB AND SIDEWALK (SEE NOTE)

PROPOSED MH (MH-621A) SEG. 0380, OFF. 1368 STA. 347+07.92, 19.81 RT.

PROPOSED MH (MH-621B) SEG. 0380, OFF. 1347 STA. 346+84.17, 30.52 RT.

START WORK STA. 346+87.13 SEG. 0380, OFF. 1347 SR 0023 UPPER LEACOCK TWP. LANCASTER COUNTY

LIMIT OF WORK STA. 346+36.97 SEG. 0380, OFF. 1297 SR 0023 UPPER LEACOCK TWP. LANCASTER COUNTY

RE-ESTABLISH W/6" PAINTLINE SEG. 0380, OFF. 1424 TO SEG. 0380, OFF. 1430 & SEG. 0390, OFF. 0038 TO SEG. 0390, OFF. 0044

3' X 3' CONNECTION PIT (TYP.) ALL PLACES

CONNECT EX. LATERALS TO PROPOSED FORCE MAIN SEG. 0390, OFF. 0090

EXISTING 10" FORCE MAIN TO BE ABANDONED IN PLACE

CONNECT EX. LATERALS TO PROPOSED FORCE MAIN SEG. 0390, OFF. 0146

CONNECT EX. LATERALS TO PROPOSED FORCE MAIN SEG. 0390, OFF. 0203 REPLACE CURB AND SIDEWALK (SEE NOTE)

PROPSOSED 12" HDPE DR-17 FORCE MAIN WITHIN A 36" TRENCH (TYP.)

CONNECT EX. LATERALS TO PROPOSED FORCE MAIN SEG. 0390, OFF. 0293

INSTALL AIR RELEASE VALVE VAULT SEG. 0390, OFF. 0342 STA. 351+33.92, 22.09 RT.

RE-ESTABLISH W/4", DY/4" PAINTLINE SEG. 0390, OFF. 0220 TO SEG. 0390, OFF. 0592

REPLACE CUB AND SIDEWALK SEG. 0390, OFF. 0331 TO OFF. 0352 (SEE NOTE)

REMOVE MANHOLE FRAME AND COVER, DEMO 2' OR REMOVE CONE SECTION OF MH, AND DRILL HOLES IN BOTTOM AND FILL WITH STONE.

CONNECT EX. LATERALS TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0390, OFF. 0417 REPLACE SIDEWALK (SEE NOTE)

REMOVE MANHOLE FRAMES AND COVERS, VAULT COVER SLAB, ALL INTERNAL EQUIPMENT DEMO 2' OF VAULT DRILL HOLES IN BOTTOM AND FILL WITH STONE.

CONNECT EX. LATERALS TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0390, OFF. 0417 REPLACE CURB AND SIDEWALK (SEE NOTE)

CONNECT EX. LATERALS TO PROPOSED FORCE MAIN SEG. 0390, OFF. 0529

CONNECT EX. TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE. SEG. 0390, OFF. 0621 REPLACE CURB AND SIDEWALK (SEE NOTE)

RE-ESTABLISH CROSSWALK PAINT LINES AS REQUIRED SEG. 0390, OFF. 0592 TO SEG. 0390, OFF. 0599

MATCHLINE STA. 7+05

SEE SHEET 16 OF 30

N/F DIANE F. BURKHOLDER 279 WEST MAIN STREET ACCT. # 360-05765-0-0000 DEED DOC. # 6676884

N/F ROBERT A., JR. & KATHERINE K. RANCK 277 WEST MAIN STREET ACCT. # 360-13160-0-0000 DEED DOC. # 5850113

N/F DANIEL P. BROOKS 273 WEST MAIN STREET ACCT. # 360-22726-0-0000 DEED DOC. # 5592934

N/F GLEN DY RENTALS, LP 265 WEST MAIN STREET ACCT. # 360-03412-0-0000 DEED DOC. # 20246797212 SUBDIVISION PLAN BOOK J-203-27

N/F ZION EVANGELICAL LUTHERAN CHURCH 251 WEST MAIN STREET ACCT. # 360-69107-0-0000 NO RECORD DEED INFO AVAILABLE

N/F ZION EVANGELICAL LUTHERAN CHURCH 18 QUARRY ROAD ACCT. # 360-49371-0-0000 DEED BOOK 5771, PAGE 40 SUBDIVISION PLAN BOOK J-203-27

N/F AMOS S. JR & MIRIAM K. ZOOK 278 WEST MAIN STREET ACCT. # 360-10889-0-0000 DEED BOOK 5137, PAGE 382 SUBDIVISION PLAN BOOK J-161-120

N/F LANCASTER CHIN CHRISTIAN CHURCH 274 WEST MAIN STREET ACCT. # 360-31000-0-0000 DEED DOC. # 6406731

N/F GRACIES RESTAURANT HOLDINGS LLC 4 KEYSTONE COURT ACCT. # 360-05570-0-0000 DEED DOC. # 20250025651

N/F JONAS L. & NANCY ANN STOLTZFUS 258 WEST MAIN STREET ACCT. # 360-69199-0-0000 DEED DOC. # 6323670

N/F JONAS L. & NANCY ANN STOLTZFUS 250 WEST MAIN STREET ACCT. # 360-37430-0-0000 DEED DOC. # 6323670

NOTES:

1. IN THE AREAS WHERE SERVICE CONNECTIONS IMPACT EXISTING CURB AND SIDEWALK: SAWCUT SIDEWALK AT EXISTING PANEL JOINTS AND REPLACE THE FULL CONCRETE PANEL, MATCHING EXISTING SLOPES AND GRADES. WHEN CONCRETE CURB IS REMOVED, REPLACEMENT SHALL EXTEND TO THE NEAREST CONTRACTION JOINT OR NEAREST SOUND JOINT ON EITHER SIDE. PROVIDE EXPANSION JOINT MATERIAL AT EACH END IN ACCORDANCE WITH RC-64M. SEE SHEETS 10-14 OF 30 FOR RESTORATION DETAILS.

FORCE MAIN PLAN

SCALE: 1"=25'

LEGEND

- FULL DEPTH PAVING (PAVEMENT)
- MILL AND OVERLAY
- TRENCH RESTORATION (NON PAVEMENT / SHOULDER)

MH-621B T.G.=428.84 I.E.=421.57 (MH-621A) I.E.=421.47 (MH-620)

MH-621A T.G.=429.15 I.E.=421.63 (MH-621B) I.E.=421.53 (PROP. FM)

HELLERS CHURCH ROAD SR-1003 (BIT) ±30.1' INTERSECTION WIDTH

EXISTING GRADE

NEW MANHOLES SHALL BE LINED IN ACCORD TO SECTION 330513.

12" DR-17 HDPE FORCE MAIN

12" SDR-35 PVC GRAVITY PIPE 23 LF. @ 0.26%

ELEV: 421.45

EXISTING 18" STORM STA: 0+21

EXISTING 6" WATER STA: 1+11

EXISTING 12" GAS STA: 1+23

EXISTING 2" WATER STA: 2+50

EXISTING 2" WATER STA: 2+51

3.00' MIN.

1'-0" MIN. (TYP.)

EXISTING 15" STORM STA: 3+69

EXISTING 2" WATER STA: 4+15

EXISTING 12" GAS STA: 3+77

EXISTING 8" FORCE MAIN STA: 4+43

ARV-1 T.G.=436.54

EXISTING 8" FORCE MAIN STA: 4+75

EXISTING 2" WATER STA: 4+92

EXISTING 2" WATER STA: 6+00

EXISTING 2" GAS STA: 6+53

EXISTING 23" STORM STA: 7+06

EXISTING 2" WATER STA: 7+00

FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

SEE SHEET 16 OF 30

RETTEW ASSOCIATES, INC.

REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

CONSTRUCTION PLAN

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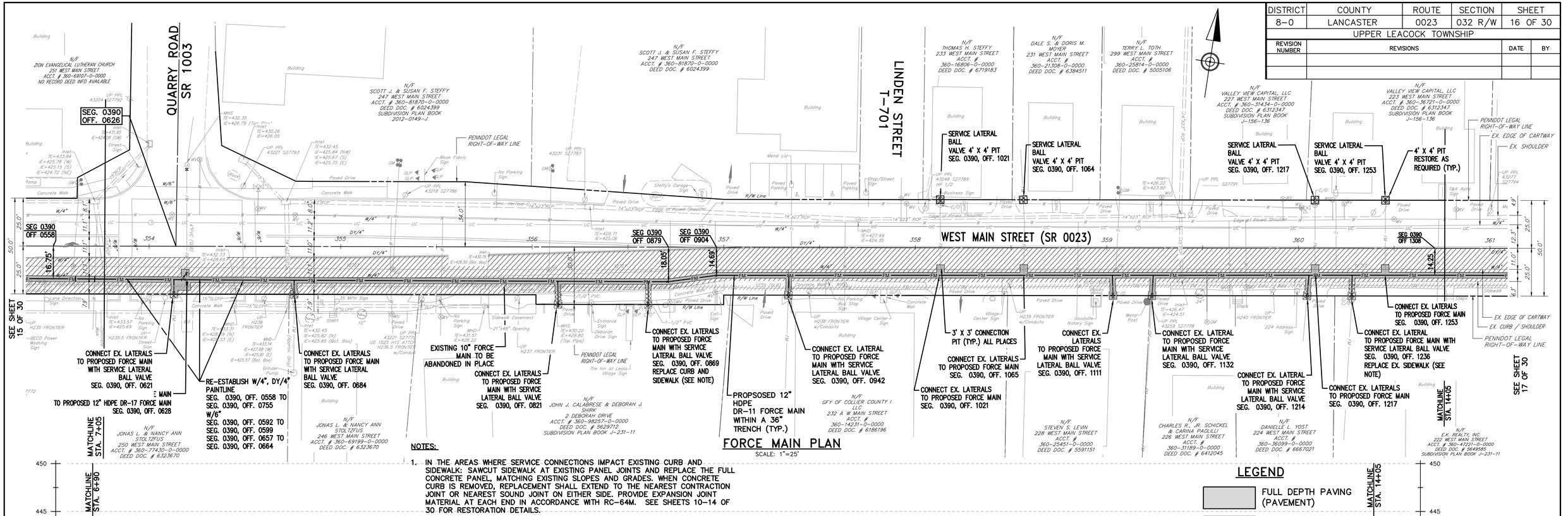
			DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	16 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY



FORCE MAIN PLAN

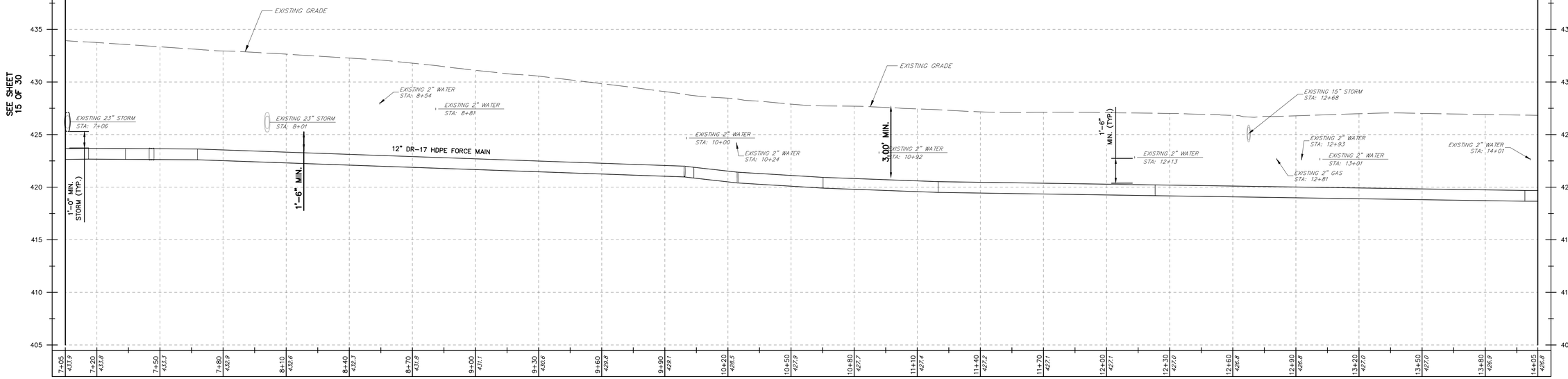
SCALE: 1"=25'

NOTES:

1. IN THE AREAS WHERE SERVICE CONNECTIONS IMPACT EXISTING CURB AND SIDEWALK: SAWCUT SIDEWALK AT EXISTING PANEL JOINTS AND REPLACE THE FULL CONCRETE PANEL, MATCHING EXISTING SLOPES AND GRADES. WHEN CONCRETE CURB IS REMOVED, REPLACEMENT SHALL EXTEND TO THE NEAREST CONTRACTION JOINT OR NEAREST SOUND JOINT ON EITHER SIDE. PROVIDE EXPANSION JOINT MATERIAL AT EACH END IN ACCORDANCE WITH RC-64M. SEE SHEETS 10-14 OF 30 FOR RESTORATION DETAILS.

LEGEND

- FULL DEPTH PAVING (PAVEMENT)
- MILL AND OVERLAY
- TRENCH RESTORATION (NON PAVEMENT / SHOULDER)



FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

CONSTRUCTION PLAN

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	17 OF 30
	UPPER LEACOCK TOWNSHIP			

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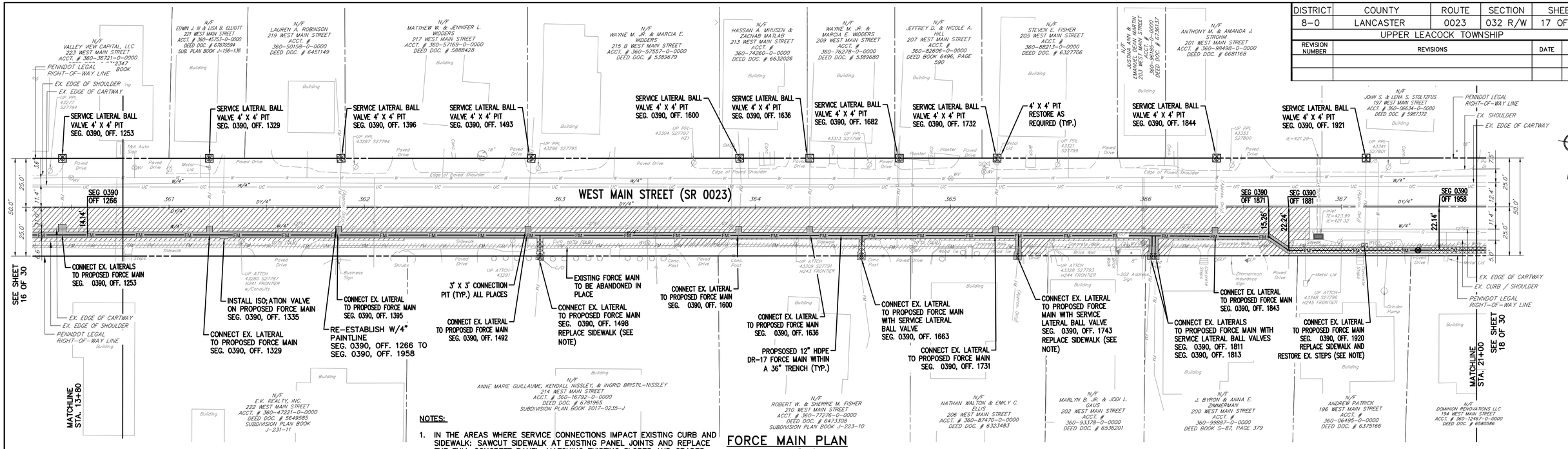

FORCE MAIN PLAN

SCALE: 1"=25'

NOTES:

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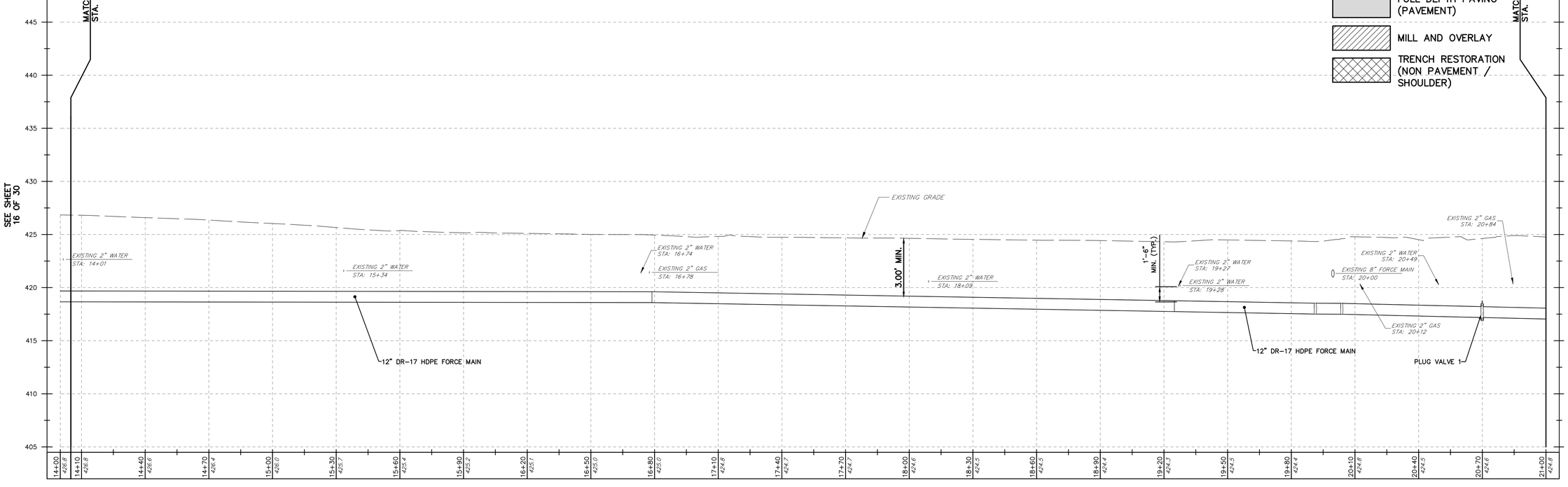

FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

CONSTRUCTION PLAN

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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	18 OF 30
UPPER LEACOCK TOWNSHIP				

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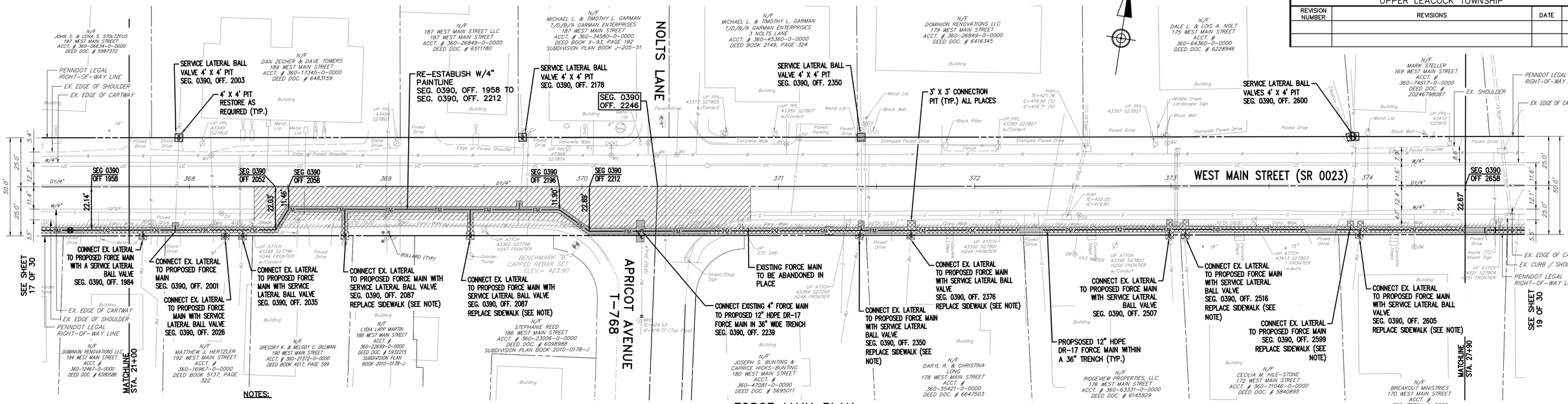

FORCE MAIN PLAN

SCALE: 1"=25'

NOTES:

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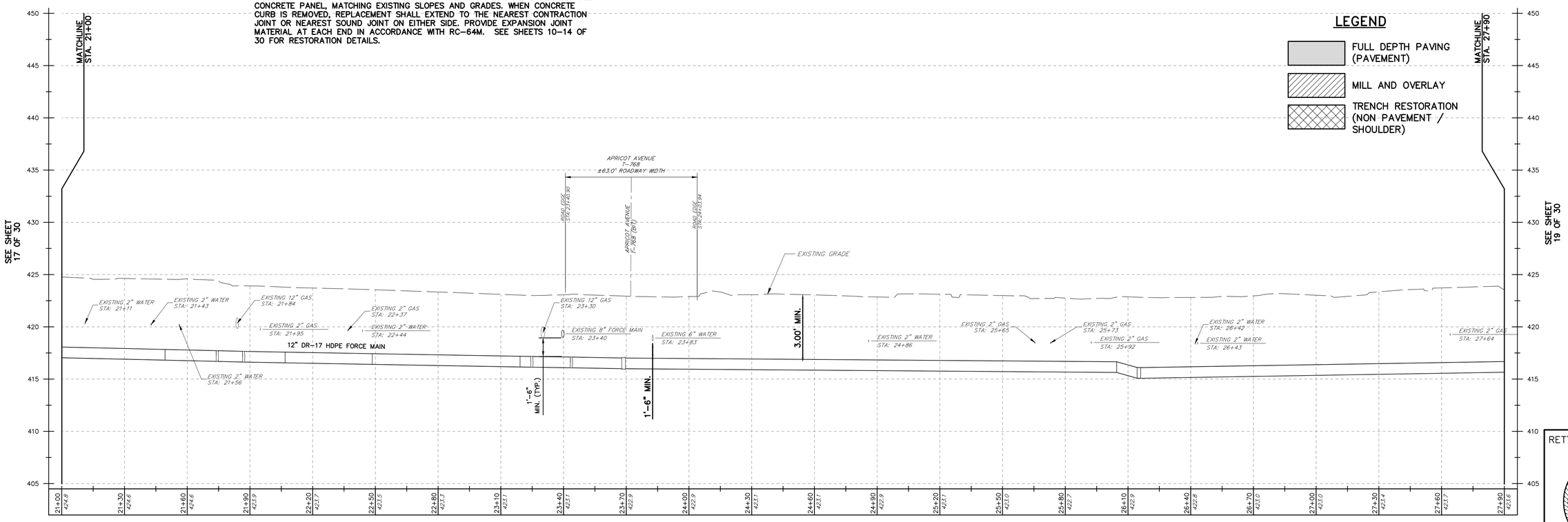

FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
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ROADWAY CONSTRUCTION PLAN

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
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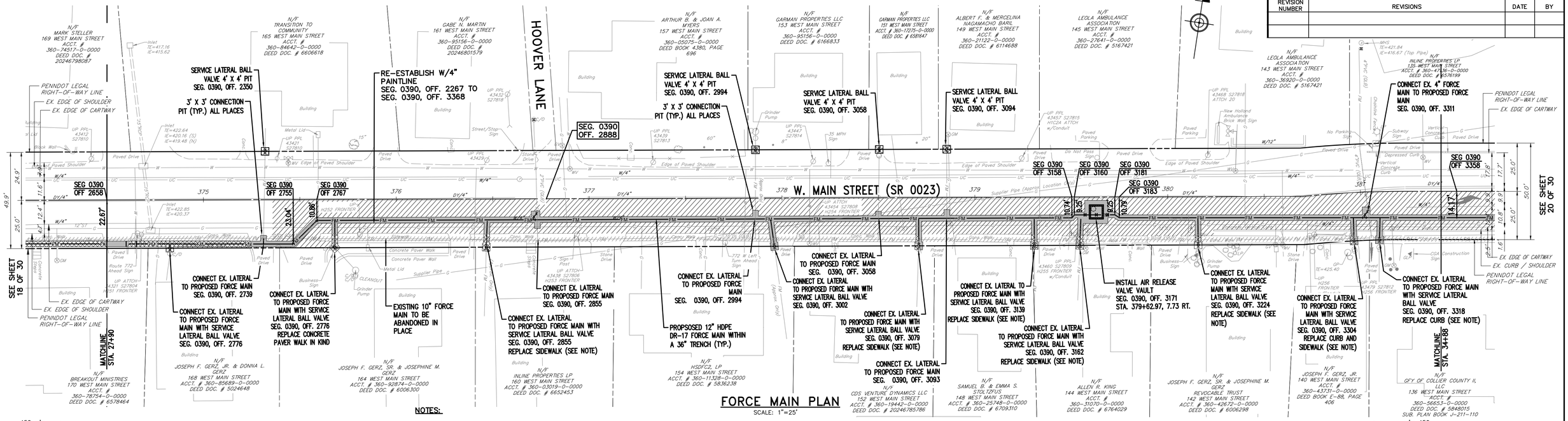


FORCE MAIN PLAN

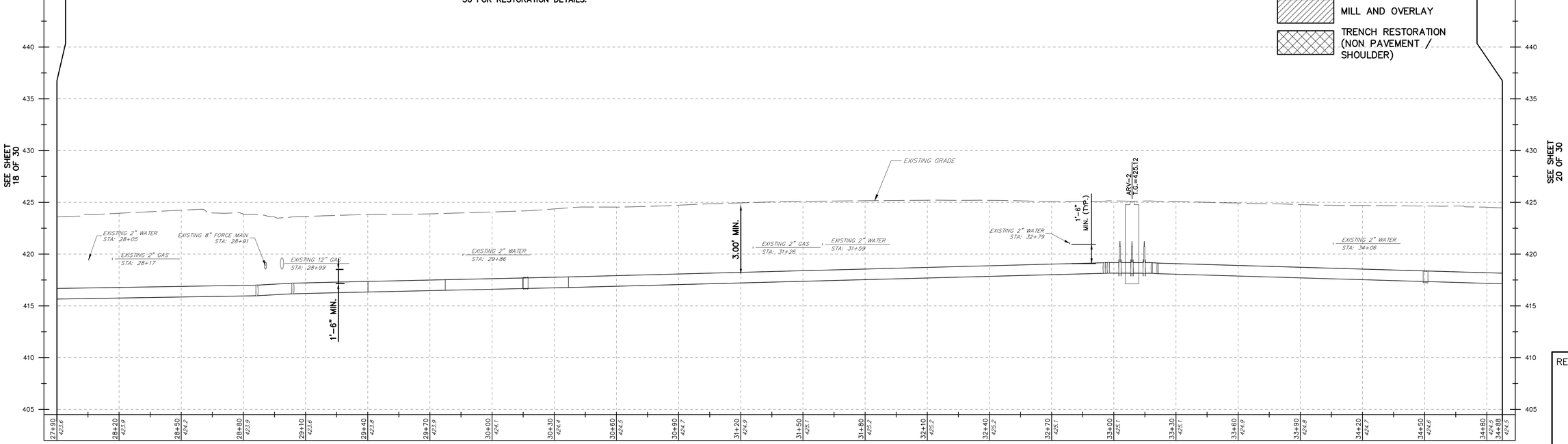
SCALE: 1"=25'

NOTES:

1. IN THE AREAS WHERE SERVICE CONNECTIONS IMPACT EXISTING CURB AND SIDEWALK: SAWCUT SIDEWALK AT EXISTING PANEL JOINTS AND REPLACE THE FULL CONCRETE PANEL, MATCHING EXISTING SLOPES AND GRADES. WHEN CONCRETE CURB IS REMOVED, REPLACEMENT SHALL EXTEND TO THE NEAREST CONTRACTION JOINT OR NEAREST SOUND JOINT ON EITHER SIDE. PROVIDE EXPANSION JOINT MATERIAL AT EACH END IN ACCORDANCE WITH RC-64M. SEE SHEETS 10-14 OF 30 FOR RESTORATION DETAILS.

LEGEND

- FULL DEPTH PAVING (PAVEMENT)
- MILL AND OVERLAY
- TRENCH RESTORATION (NON PAVEMENT / SHOULDER)



FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

ROADWAY CONSTRUCTION PLAN

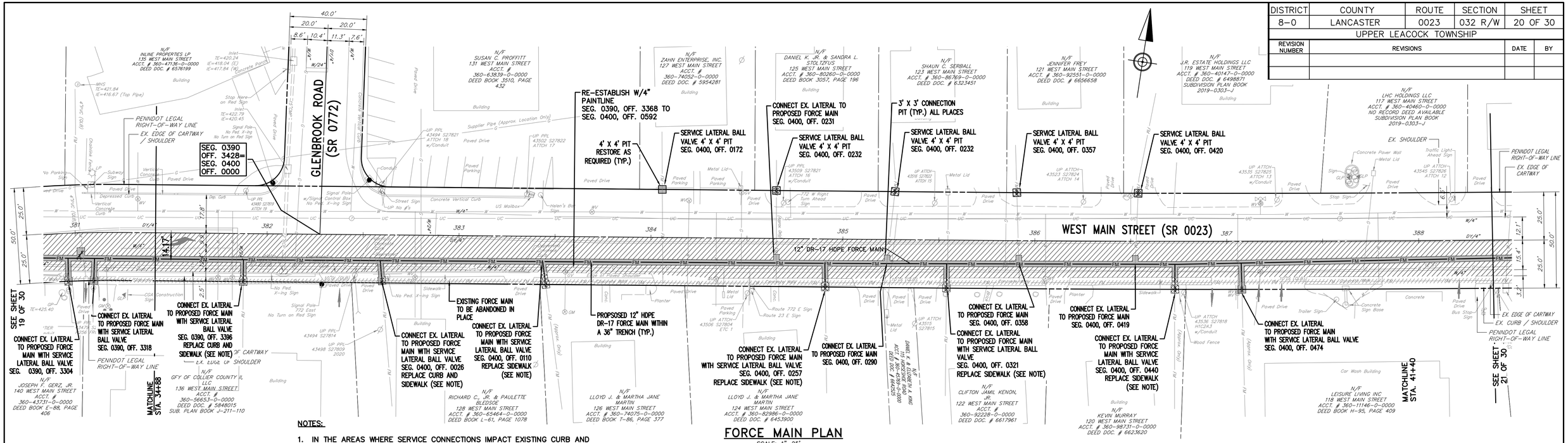
RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — SCOTT KENNETH NALE — ENGINEER PE-075541

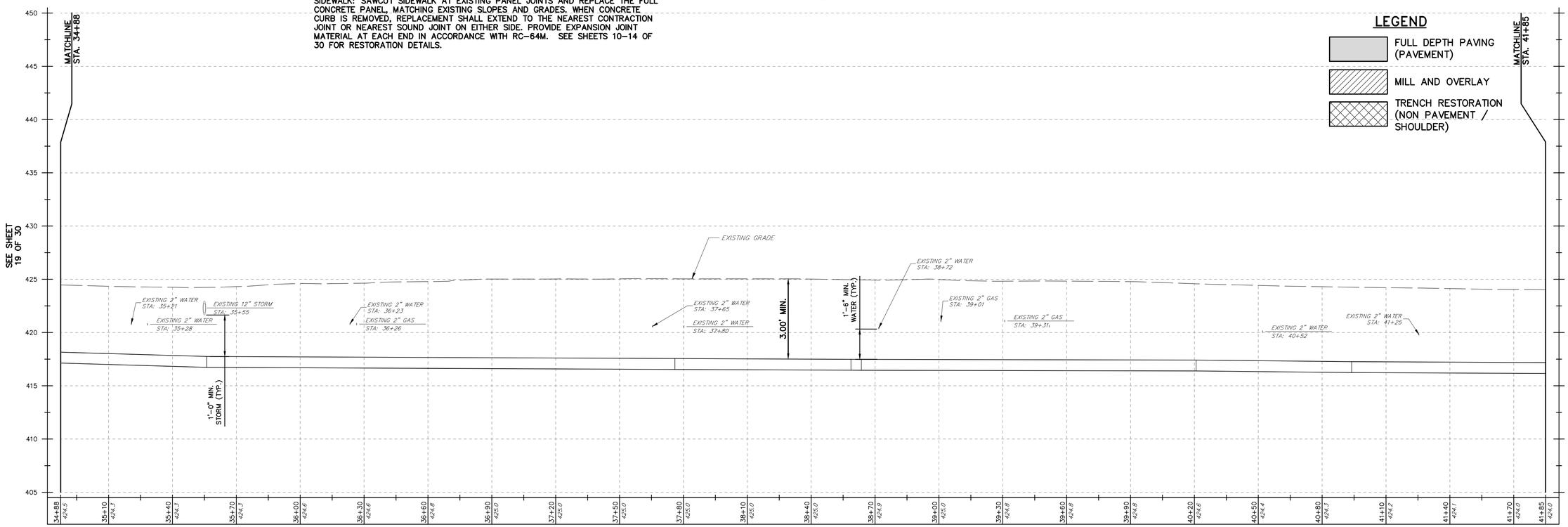
CADD FILE: C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-ROADIMP.dwg	CLIENT: UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY, 161 NEWPORT ROAD, LEOLA PA, 17540	RETTEW. 3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063. Akron-Canton, OH · St. Clairsville, OH · Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA · Berwyn, PA · Pittsburgh, PA · Williamsport, PA · State College, PA	MANAGER: ABRAHAM KING, PE	DESIGN BY: ANDREW FERKO	PARTY CHIEF: NICK LEIDY
			DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	FIELDBOOK NO.: DATA COLLECTOR
							RETTEW PROJECT NO.: 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	20 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY



FORCE MAIN PLAN
SCALE: 1"=25'



FORCE MAIN PROFILE
HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

ROADWAY CONSTRUCTION PLAN

RETTEW ASSOCIATES, INC.

REGISTERED PROFESSIONAL
SCOTT KENNETH NALE
ENGINEER
PE-075541

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CLIENT
UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY
161 NEWPORT ROAD
LEOLA PA, 17540

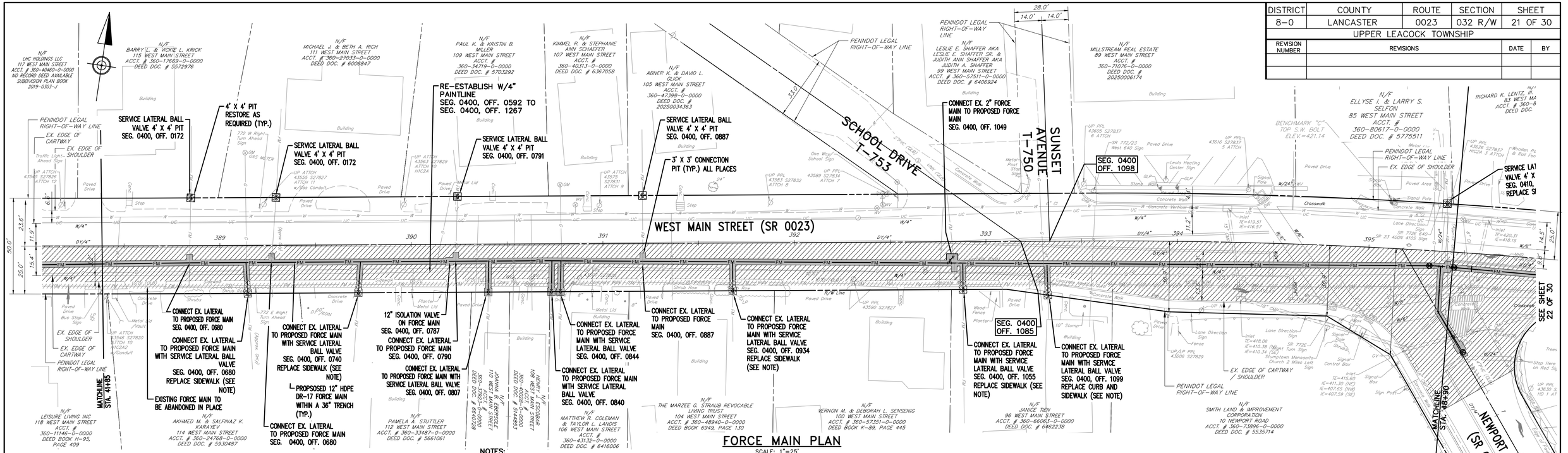
RETTEW

3020 Columbia Ave., Lancaster, PA 17603
(717) 394-3721 · Fax (717) 394-1063
Akron-Canton, OH · St. Clairsville, OH
Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA
Berwyn, PA · Pittsburgh, PA · Williamsport, PA
State College, PA

MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	NICK LEIDY	DATA COLLECTOR
DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	21 OF 30
	UPPER LEACOCK TOWNSHIP			

REVISION NUMBER	REVISIONS	DATE	BY



FORCE MAIN PLAN

SCALE: 1"=25'

NOTES:

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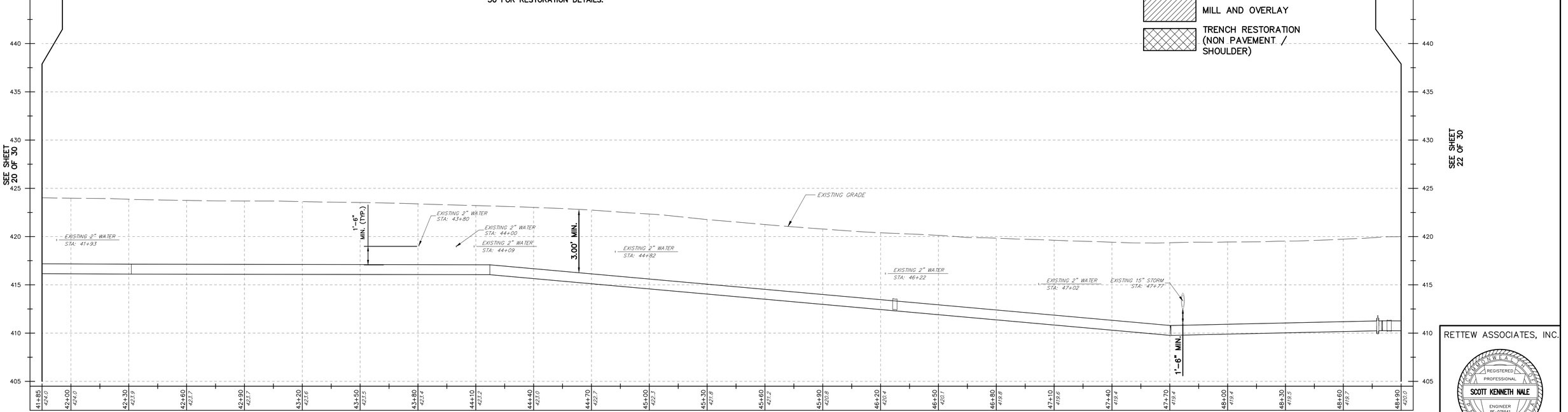
LEGEND

- FULL DEPTH PAVING (PAVEMENT)
- MILL AND OVERLAY
- TRENCH RESTORATION (NON PAVEMENT / SHOULDER)



FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

CONSTRUCTION PLAN

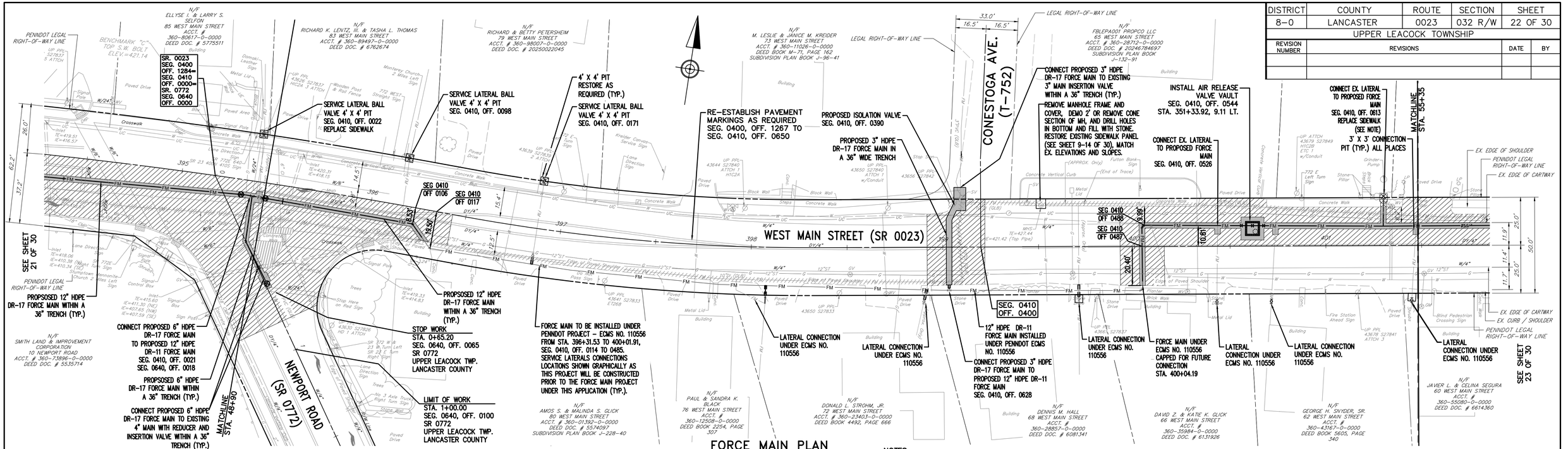
RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

CADD FILE:	CLIENT			MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-ROADIMP.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW.	3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 - Fax (717) 394-1063 Akron-Canton, OH - St. Clairsville, OH Lehigh Valley, PA - Morgantown, WV - Mechanicsburg, PA Berwyn, PA - Pittsburgh, PA - Williamsport, PA State College, PA	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	NICK LEIDY	DATA COLLECTOR
				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

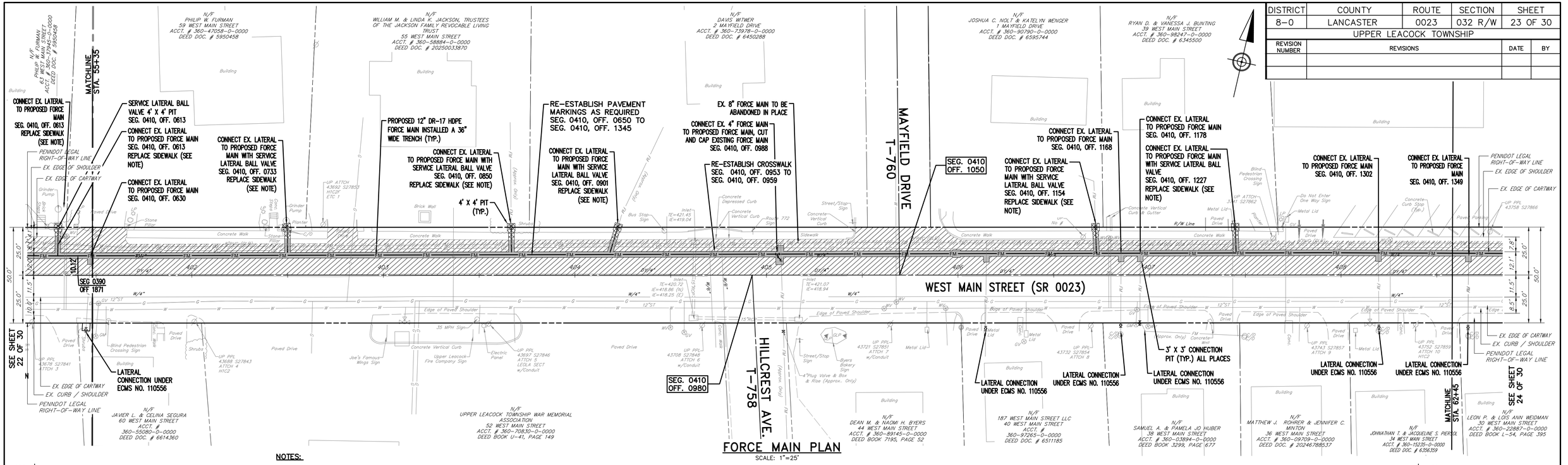
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	22 OF 30
	UPPER LEACOCK TOWNSHIP			

REVISION NUMBER	REVISIONS	DATE	BY


WEST MAIN STREET (SR 0023)
NEWPORT ROAD (SR 0772)
CONESTOGA AVE. (T-752)
SR. 0023 SEG. 0400 OFF. 1284 SEG. 0410 OFF. 0000 SR. 0772 SEG. 0640 OFF. 0000
SERVICE LATERAL BALL VALVE 4" X 4" PIT SEG. 0410, OFF. 0022 REPLACE SIDEWALK
SERVICE LATERAL BALL VALVE 4" X 4" PIT SEG. 0410, OFF. 0098
4' X 4' PIT RESTORE AS REQUIRED (TYP.)
SERVICE LATERAL BALL VALVE 4" X 4" PIT SEG. 0410, OFF. 0171
RE-ESTABLISH PAVEMENT MARKINGS AS REQUIRED SEG. 0400, OFF. 1267 TO SEG. 0410, OFF. 0650
PROPOSED ISOLATION VALVE SEG. 0410, OFF. 0390
PROPOSED 3" HDPE DR-17 FORCE MAIN IN A 36" WIDE TRENCH
CONNECT PROPOSED 3" HDPE DR-17 FORCE MAIN TO EXISTING 3" MAIN INSERTION VALVE WITHIN A 36" TRENCH (TYP.)
REMOVE MANHOLE FRAME AND COVER, DEMO 2' OR REMOVE CONE SECTION OF MH, AND DRILL HOLES IN BOTTOM AND FILL WITH STONE. RESTORE EXISTING SIDEWALK PANEL (SEE SHEET 9-14 OF 30), MATCH EX. ELEVATIONS AND SLOPES.
INSTALL AIR RELEASE VALVE VAULT SEG. 0410, OFF. 0544 STA. 351+33.92, 9.11 LT.
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 0526
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 0613 REPLACE SIDEWALK (SEE NOTE)
3' X 3' CONNECTION PIT (TYP.) ALL PLACES
MATCHLINE STA. 55+35
SEG 0410 OFF 0106
SEG 0410 OFF 0117
SEG 0410 OFF 0488
SEG 0410 OFF 0487
SEG. 0410 OFF. 0400
PROPOSED 12" HDPE DR-17 FORCE MAIN WITHIN A 36" TRENCH (TYP.)
PROPOSED 12" HDPE DR-17 FORCE MAIN WITHIN A 36" TRENCH (TYP.)
CONNECT PROPOSED 6" HDPE DR-17 FORCE MAIN TO PROPOSED 12" HDPE DR-11 FORCE MAIN SEG. 0410, OFF. 0021 SEG. 0640, OFF. 0018
PROPOSED 6" HDPE DR-17 FORCE MAIN WITHIN A 36" TRENCH (TYP.)
CONNECT PROPOSED 6" HDPE DR-17 FORCE MAIN TO EXISTING 4" MAIN WITH REDUCER AND INSERTION VALVE WITHIN A 36" TRENCH (TYP.) SEG. 0640, OFF. 0053
MATCHLINE STA. 48+90
STOP WORK STA. 0+65.20 SEG. 0640, OFF. 0065 SR 0772 UPPER LEACOCK TWP. LANCASTER COUNTY
LIMIT OF WORK STA. 1+00.00 SEG. 0640, OFF. 0100 SR 0772 UPPER LEACOCK TWP. LANCASTER COUNTY
FORCE MAIN TO BE INSTALLED UNDER PENNDOT PROJECT - ECMS NO. 110556 FROM STA. 396+31.53 TO 400+01.91, SEG. 0410, OFF. 0114 TO 0485. SERVICE LATERALS CONNECTIONS LOCATIONS SHOWN GRAPHICALLY AS THIS PROJECT WILL BE CONSTRUCTED PRIOR TO THE FORCE MAIN PROJECT UNDER THIS APPLICATION (TYP.).
LATERAL CONNECTION UNDER ECMS NO. 110556
LATERAL CONNECTION UNDER ECMS NO. 110556
12" HDPE DR-11 FORCE MAIN INSTALLED UNDER PENNDOT ECMS NO. 110556
CONNECT PROPOSED 3" HDPE DR-17 FORCE MAIN TO PROPOSED 12" HDPE DR-11 FORCE MAIN SEG. 0410, OFF. 0628
LATERAL CONNECTION UNDER ECMS NO. 110556
FORCE MAIN UNDER ECMS NO. 110556 CAPPED FOR FUTURE CONNECTION STA. 400+04.19
LATERAL CONNECTION UNDER ECMS NO. 110556
LATERAL CONNECTION UNDER ECMS NO. 110556
LATERAL CONNECTION UNDER ECMS NO. 110556
SEE SHEET 21 OF 30
SEE SHEET 23 OF 30
N/F SMITH LAND & IMPROVEMENT CORPORATION 10 NEWPORT ROAD ACCT. # 360-73896-0-0000 DEED DOC. # 5535714
N/F ELLYSE I. & LARRY S. SELFON 85 WEST MAIN STREET ACCT. # 360-80617-0-0000 DEED DOC. # 5775511
N/F RICHARD K. LENTZ, III. & TASHA L. THOMAS 83 WEST MAIN STREET ACCT. # 360-89497-0-0000 DEED DOC. # 6762674
N/F RICHARD & BETTY PETERSHEIM 79 WEST MAIN STREET ACCT. # 360-98007-0-0000 DEED DOC. # 20250022045
N/F M. LESLIE & JANICE M. KREIDER 73 WEST MAIN STREET ACCT. # 360-11026-0-0000 DEED BOOK M-71, PAGE 162 SUBDIVISION PLAN BOOK J-96-41
N/F FBLEPAQOI PROPCO LLC 65 WEST MAIN STREET ACCT. # 360-28712-0-0000 DEED DOC. # 20246784697 SUBDIVISION PLAN BOOK J-132-91
N/F AMOS S. & MALINDA S. GLICK 80 WEST MAIN STREET ACCT. # 360-01392-0-0000 DEED DOC. # 5574097 SUBDIVISION PLAN BOOK J-228-40
N/F PAUL & SANDRA K. BLACK 76 WEST MAIN STREET ACCT. # 360-12508-0-0000 DEED BOOK 2254, PAGE 307
N/F DONALD L. STROHM, JR. 72 WEST MAIN STREET ACCT. # 360-23403-0-0000 DEED BOOK 4492, PAGE 666
N/F DENNIS M. HALL 68 WEST MAIN STREET ACCT. # 360-28857-0-0000 DEED DOC. # 6081341
N/F DAVID Z. & KATIE K. GLICK 66 WEST MAIN STREET ACCT. # 360-35984-0-0000 DEED DOC. # 6131926
N/F GEORGE H. SNYDER, SR. 62 WEST MAIN STREET ACCT. # 360-43167-0-0000 DEED BOOK 5605, PAGE 340
N/F JAVIER L. & CELINA SEGURA 60 WEST MAIN STREET ACCT. # 360-55080-0-0000 DEED DOC. # 6614360
PENNDOT LEGAL RIGHT-OF-WAY LINE
LEGAL RIGHT-OF-WAY LINE
EX. EDGE OF SHOULDER
EX. EDGE OF CARTWAY
EX. CURB / SHOULDER
BENCHMARK "C" TOP S.W. BOLT ELEV.=421.14
SR 23 403
SR 772 E Left Turn Sign
SR 772 WCT Straight Sign
SR 772E Left Turn Sign
SR 772 W & SR 23 N Turn Left Right Sign
SR 23 E Turn Right Sign
SR 772E Right Turn Sign
SR 772 W & SR 23 N Turn Left Sign
SR 23 S Turn Right Sign
No 3 Axle Truck Right Turn Sign
Stop Here on Red Sign
Fire Station Ahead Sign
Blind Pedestrian Crossing Sign
Fulton Bank Sign
Grinder Pump
Monterey Church 2 Miles Left Sign
Mennonite Church 4 Miles Left Sign
Dornail Leather Shop Sign
Stumptown Cafe Sign
One Direction Sign
Signal Control Box
Signal Box
Sign Post
Crosswalk
Concrete Vertical Curb
Concrete Wall
Concrete Steps
Block Wall
Metal Rail
Metal Lid
Stone Pillar
Stone Drive
Brick Walk
Planter
Paved Drive
Paved Area
Building
Trees
Shrubs
Gazebo
Lane Direction Sign
Kreider Canvas Service Sign
Stop Sign
Inlet IE=419.51 IE=416.57
Inlet IE=420.31 IE=418.15
Inlet IE=418.06 (IN) IE=410.36 (IN) IE=410.34 (SE)
Inlet IE=415.60 IE=411.50 (NE) IE=407.65 (NW) IE=407.59 (SE)
Inlet IE=419.33 IE=414.83
Inlet IE=427.44
MH IE=427.44
MH IE=421.42 (Top Pipe)
UP PPL 43636 527837 ATTCH 3 ATTCH
UP PPL 43644 527840 ATTCH 1 HTC2A
UP PPL 43650 527840 ATTCH 1 w/Conduit
UP PPL 43656 527842
UP PPL 43630 527838 HD 1 ATTCH
UP PPL 43641 527833 E7268
UP PPL 43650 527833
UP PPL 43661 527837
UP PPL 43678 527841 ATTCH 3
UP ATTCH 43679 527849 HTC2B ETC 1 w/Conduit
UP PPL 43638 527840 2 ATTCH
UP PPL 43638 527840 3 ATTCH
UP PPL 43638 527840 4 ATTCH
UP PPL 43638 527840 5 ATTCH
UP PPL 43638 527840 6 ATTCH
UP PPL 43638 527840 7 ATTCH
UP PPL 43638 527840

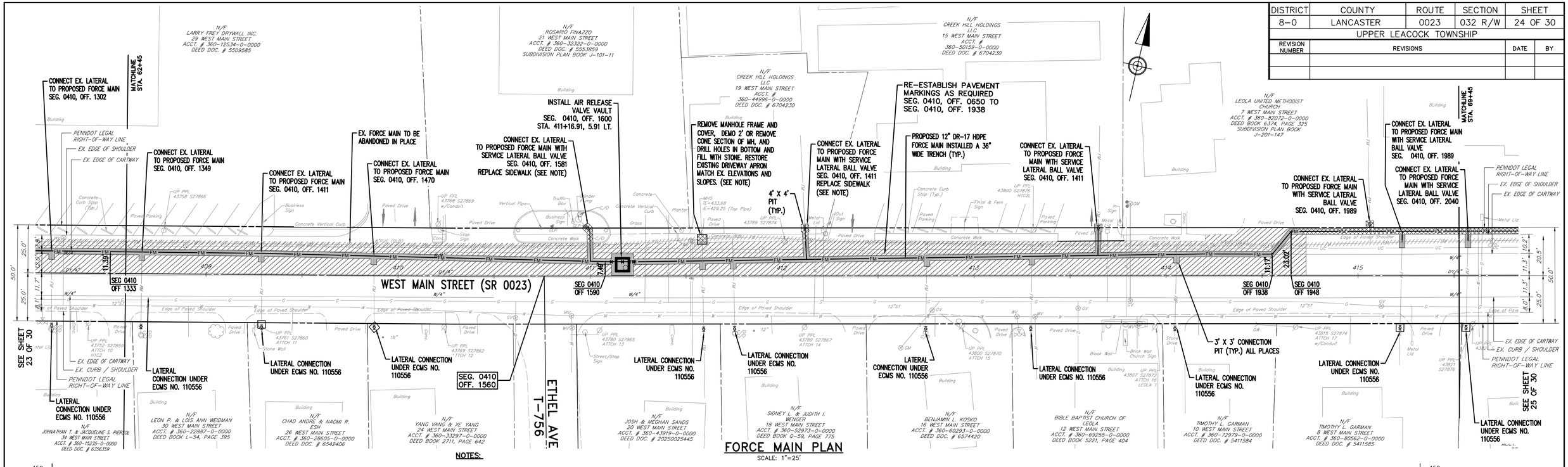
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	23 OF 30
	UPPER LEACOCK TOWNSHIP			

REVISION NUMBER	REVISIONS	DATE	BY


MATCHLINE STA. 55+35
MATCHLINE STA. 62+45
SEE SHEET 22 OF 30
SEE SHEET 24 OF 30
MAYFIELD DRIVE T-760
HILLCREST AVE. T-758
WEST MAIN STREET (SR 0023)
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 0613 REPLACE SIDEWALK (SEE NOTE)
SERVICE LATERAL BALL VALVE 4' X 4' PIT SEG. 0410, OFF. 0613
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 0613 REPLACE SIDEWALK (SEE NOTE)
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 0630
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 0733 REPLACE SIDEWALK (SEE NOTE)
PROPOSED 12" DR-17 HDPE FORCE MAIN INSTALLED A 36" WIDE TRENCH (TYP.)
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0410, OFF. 0850 REPLACE SIDEWALK (SEE NOTE)
4' X 4' PIT (TYP.)
RE-ESTABLISH PAVEMENT MARKINGS AS REQUIRED SEG. 0410, OFF. 0650 TO SEG. 0410, OFF. 1345
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0410, OFF. 0901 REPLACE SIDEWALK (SEE NOTE)
EX. 8" FORCE MAIN TO BE ABANDONED IN PLACE
CONNECT EX. 4" FORCE MAIN TO PROPOSED FORCE MAIN, CUT AND CAP EXISTING FORCE MAIN SEG. 0410, OFF. 0988
RE-ESTABLISH CROSSWALK SEG. 0410, OFF. 0953 TO SEG. 0410, OFF. 0959
SEG. 0410 OFF. 1050
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 1168
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0410, OFF. 1154 REPLACE SIDEWALK (SEE NOTE)
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 1178
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0410, OFF. 1227 REPLACE SIDEWALK (SEE NOTE)
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 1302
CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0410, OFF. 1349
SEG. 0390 OFF 1871
SEG. 0410 OFF. 0980
3' X 3' CONNECTION PIT (TYP.) ALL PLACES
LATERAL CONNECTION UNDER ECMS NO. 110556
N/F PHILIP W. FURMAN 59 WEST MAIN STREET ACCT. # 360-47058-0-0000 DEED DOC. # 5950458
N/F WILLIAM M. & LINDA K. JACKSON, TRUSTEES OF THE JACKSON FAMILY REVOCABLE LIVING TRUST 55 WEST MAIN STREET ACCT. # 360-58884-0-0000 DEED DOC. # 20250033870
N/F DAVIS WITMER 2 MAYFIELD DRIVE ACCT. # 360-73978-0-0000 DEED DOC. # 6450288
N/F JOSHUA C. NOLT & KATELYN WENGER 1 MAYFIELD DRIVE ACCT. # 360-90790-0-0000 DEED DOC. # 6595744
N/F RYAN D. & VANESSA J. BUNTING 39 WEST MAIN STREET ACCT. # 360-98247-0-0000 DEED DOC. # 6345500
N/F JAVIER L. & CELINA SEGURA 60 WEST MAIN STREET ACCT. # 360-55080-0-0000 DEED DOC. # 6614360
N/F UPPER LEACOCK TOWNSHIP WAR MEMORIAL ASSOCIATION 52 WEST MAIN STREET ACCT. # 360-70830-0-0000 DEED BOOK U-41, PAGE 149
N/F DEAN M. & NAOMI H. BYERS 44 WEST MAIN STREET ACCT. # 360-89145-0-0000 DEED BOOK 7195, PAGE 52
N/F 187 WEST MAIN STREET LLC 40 WEST MAIN STREET ACCT. # 360-97265-0-0000 DEED DOC. # 6511185
N/F SAMUEL A. & PAMELA JO HUBER 38 WEST MAIN STREET ACCT. # 360-03894-0-0000 DEED BOOK 3299, PAGE 677
N/F MATTHEW J. ROHRER & JENNIFER C. MINTON 36 WEST MAIN STREET ACCT. # 360-09709-0-0000 DEED DOC. # 20246788537
N/F JOHNATHAN T. & JACQUELINE S. PIERCE 34 WEST MAIN STREET ACCT. # 360-15235-0-0000 DEED DOC. # 6356359
N/F LEON P. & LOIS ANN WEIDMAN 30 WEST MAIN STREET ACCT. # 360-22887-0-0000 DEED BOOK L-54, PAGE 395
PENNDOT LEGAL RIGHT-OF-WAY LINE
EX. EDGE OF SHOULDER
EX. EDGE OF CARTWAY
EX. CURB / SHOULDER
Edge of Paved Shoulder
Concrete Walk
Paved Drive
Concrete Vertical Curb
Concrete Vertical Curb & Gutter
Concrete Depressed Curb
Concrete Curb Stop (Typ.)
Brick Wall
Stone Pillar
Shrubs
Grinder Pump
Bus Stop Sign
Street/Stop Sign
Blind Pedestrian Crossing Sign
Do Not Enter One Way Sign
Metal Lid
Inlet
Joe's Famous Wings Sign
Upper Leacock Fire Company Sign
Byers Bakery Sign
35 MPH Sign
Electric Panel
Blind Driveway
Paved Drive
Building
Shed
Gazebo
Pavilion
Pool
Pool Pump
Pool Fence
Deck
Fence
Hedge
Tree
Utility Pole
Guy Wire
Light Pole
Mailbox
Flag Pole
Sign
Gas Meter
Gas Valve
Water Valve
Water Meter
Hydrant
Sanitary Manhole
Storm Manhole
Storm Inlet
Gas Line
Water Line
Sanitary Line
Storm Line
Overhead Utility
Underground Utility
Guide Rail
Chain Link Fence
Wood Fence
Stone Wall
Retaining Wall
Tree Line
Treeline
Property Line
Right-of-Way Line
Centerline
Road Edge
Curb
Gutter
Sidewalk
Crosswalk
Driveway
Parking Lot
Parking Space
Handicap Parking
Handicap Ramp
Handicap Symbol
Handicap Sign
Handicap Curb
Handicap Curb Ramp
Handicap Curb Ramp Sign
Handicap Curb Ramp Symbol

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	24 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY



FORCE MAIN PLAN

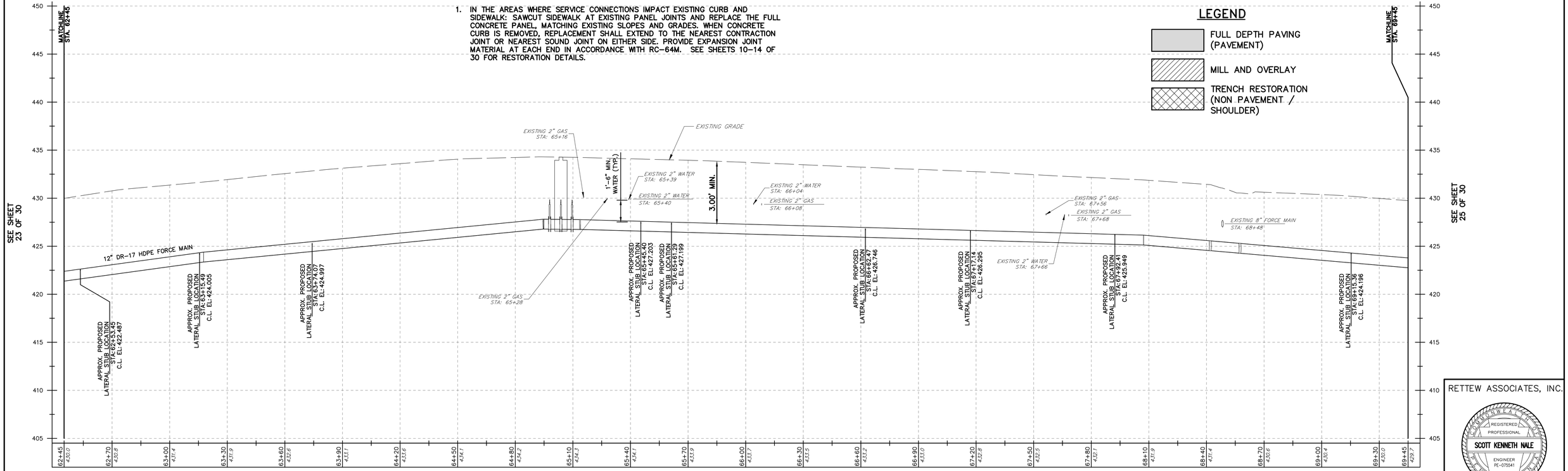
SCALE: 1"=25'

NOTES:

1. IN THE AREAS WHERE SERVICE CONNECTIONS IMPACT EXISTING CURB AND SIDEWALK: SAWCUT SIDEWALK AT EXISTING PANEL JOINTS AND REPLACE THE FULL CONCRETE PANEL, MATCHING EXISTING SLOPES AND GRADES. WHEN CONCRETE CURB IS REMOVED, REPLACEMENT SHALL EXTEND TO THE NEAREST CONTRACTION JOINT OR NEAREST SOUND JOINT ON EITHER SIDE. PROVIDE EXPANSION JOINT MATERIAL AT EACH END IN ACCORDANCE WITH RC-64M. SEE SHEETS 10-14 OF 30 FOR RESTORATION DETAILS.

LEGEND

- FULL DEPTH PAVING (PAVEMENT)
- MILL AND OVERLAY
- TRENCH RESTORATION (NON PAVEMENT / SHOULDER)



FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

CONSTRUCTION PLAN

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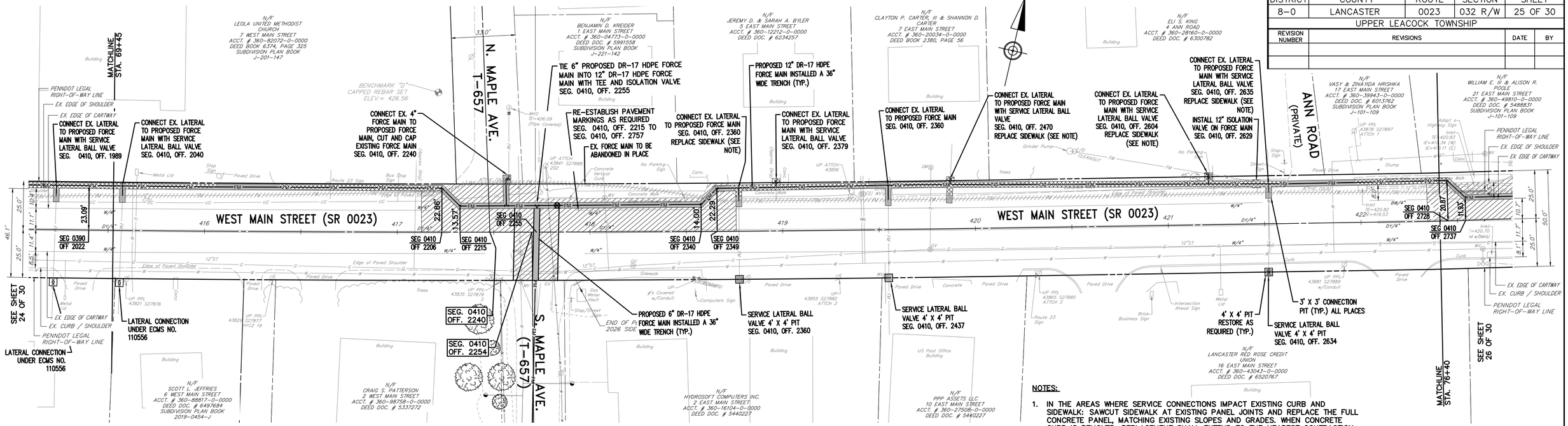
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-ROADIMP.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW.	3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	NICK LEIDY	DATA COLLECTOR
				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	25 OF 30
	UPPER LEACOCK TOWNSHIP			

REVISION NUMBER	REVISIONS	DATE	BY



FORCE MAIN PLAN

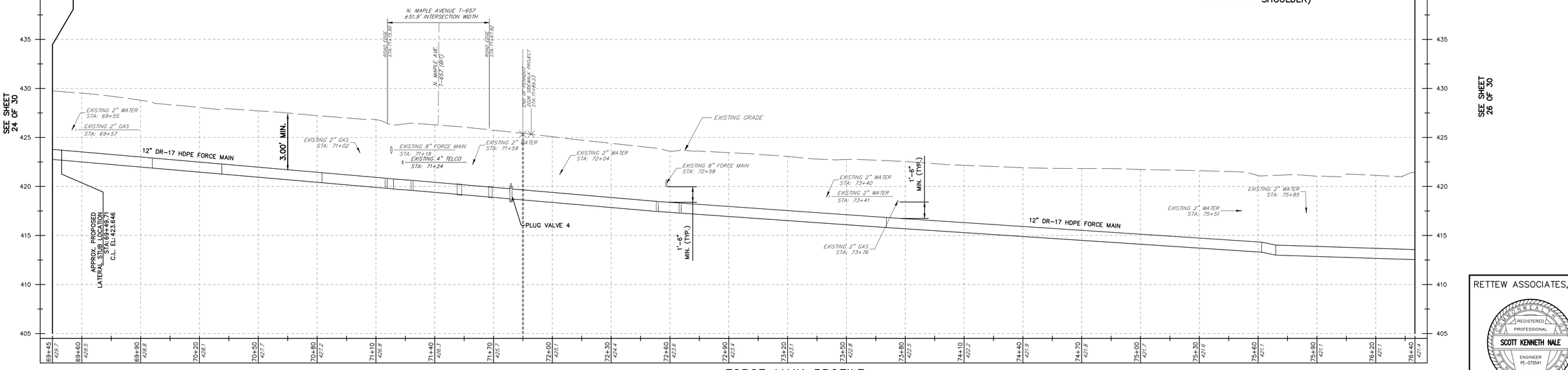
SCALE: 1"=25'

NOTES:

1. IN THE AREAS WHERE SERVICE CONNECTIONS IMPACT EXISTING CURB AND SIDEWALK: SAWCUT SIDEWALK AT EXISTING PANEL JOINTS AND REPLACE THE FULL CONCRETE PANEL, MATCHING EXISTING SLOPES AND GRADES. WHEN CONCRETE CURB IS REMOVED, REPLACEMENT SHALL EXTEND TO THE NEAREST CONTRACTION JOINT OR NEAREST SOUND JOINT ON EITHER SIDE. PROVIDE EXPANSION JOINT MATERIAL AT EACH END IN ACCORDANCE WITH RC-64M. SEE SHEETS 10-14 OF 30 FOR RESTORATION DETAILS.

LEGEND

- FULL DEPTH PAVING (PAVEMENT)
- MILL AND OVERLAY
- TRENCH RESTORATION (NON PAVEMENT / SHOULDER)



FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

CONSTRUCTION PLAN

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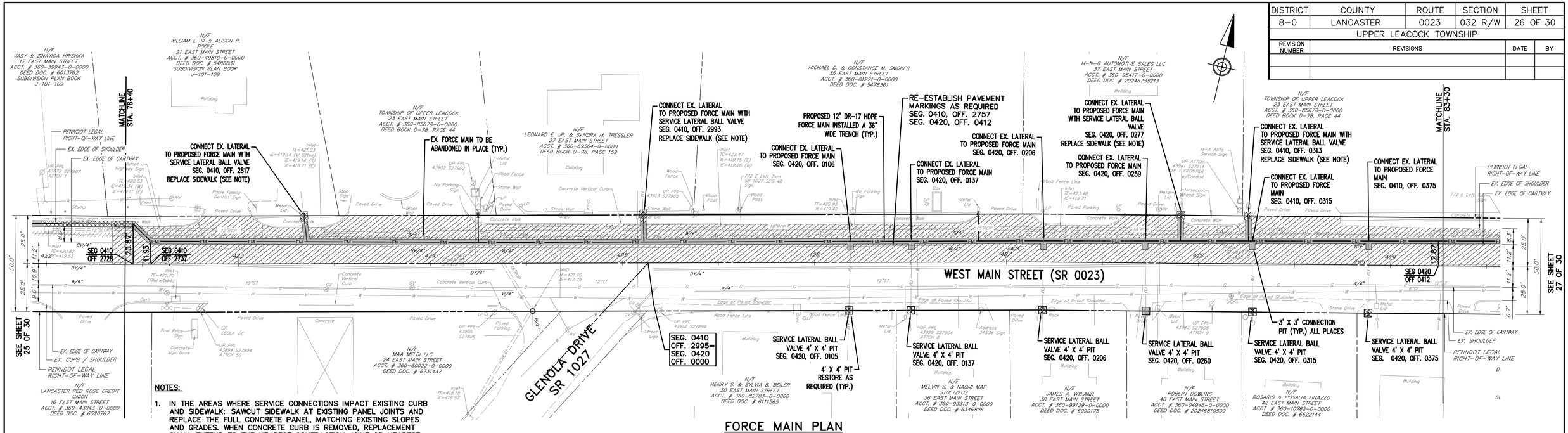
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-ROADIMP.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW. 3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	NICK LEIDY	DATA COLLECTOR
			DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	26 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY



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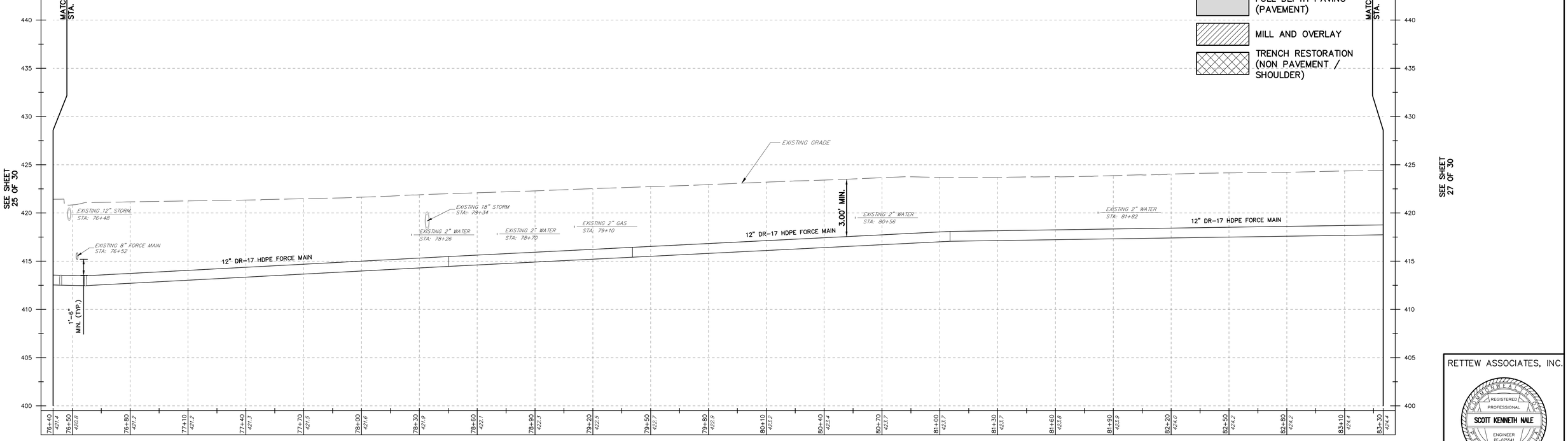
FORCE MAIN PLAN

SCALE: 1"=25'

LEGEND

- FULL DEPTH PAVING (PAVEMENT)
- MILL AND OVERLAY
- TRENCH RESTORATION (NON PAVEMENT / SHOULDER)



FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

CONSTRUCTION PLAN

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

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				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	27 OF 30
	UPPER LEACOCK TOWNSHIP			

REVISION NUMBER	REVISIONS	DATE	BY

MATCHLINE STA. 83+30

SEE SHEET 26 OF 30

N/F TOWNSHIP OF UPPER LEACOCK 23 EAST MAIN STREET ACCT. # 360-85678-0-0000 DEED BOOK D-76, PAGE 44

N/F MICHAEL D. & CONSTANCE M. SMOKER 49 EAST MAIN STREET ACCT. # 360-25188-0-0000 DEED DOC. # 6299503

N/F LOREN L. & HELEN E. ZIMMERMAN 51 EAST MAIN STREET ACCT. # 360-36416-0-0000 DEED DOC. # 5390765

N/F ANDREW M. FOREMAN 57 EAST MAIN STREET ACCT. # 360-42527-0-0000 DEED DOC. # 6296342

N/F JAMES A. NEWCOMER, JR. & BARBARA MYER 59 EAST MAIN STREET ACCT. # 360-47538-0-0000 DEED BOOK P-68, PAGE 193

N/F TREVOR M. ROWE 61 EAST MAIN STREET ACCT. # 360-51847-0-0000 DEED DOC. # 20246802450

N/F STEPHEN RAY NEWSWANGER 63 EAST MAIN STREET ACCT. # 360-56556-0-0000 DEED DOC. # 6488034

N/F JOHN G. & BARBARA J. YOUNKER 65 EAST MAIN STREET ACCT. # 360-61864-0-0000 DEED BOOK O-65, PAGE 26

N/F LORIN J. & JOANNE A. MELLINGER 67 EAST MAIN STREET ACCT. # 360-67179-0-0000 DEED BOOK O-96, PAGE 413

N/F KING REAL ESTATE SOLUTIONS, LLC. 69 EAST MAIN STREET ACCT. # 360-72491-0-0000 DEED DOC. # 6113227

N/F PRESTON S. & JULIE C. NELSON 71A EAST MAIN STREET ACCT. # 360-88056-0-0000 DEED DOC. # 6681783

PENNDOT LEGAL RIGHT-OF-WAY LINE

EX. EDGE OF SHOULDER

EX. EDGE OF CARTWAY

EX. FORCE MAIN TO BE ABANDONED IN PLACE (TYP.)

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 0491 REPLACE SIDEWALK (SEE NOTE)

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 0513

RE-ESTABLISH PAVEMENT MARKINGS AS REQUIRED SEG. 0420, OFF. 0412 TO SEG. 0420, OFF. 1105

INSTALL 12" ISOLATION VALVE SEG. 0420, OFF. 0579

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN SEG. 0420, OFF. 0695

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 0701

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 0724 REPLACE SIDEWALK (SEE NOTE)

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 0796 REPLACE SIDEWALK (SEE NOTE)

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 0833

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 0876

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 0923

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 1004 REPLACE SIDEWALK (SEE NOTE)

CONNECT EX. LATERAL TO PROPOSED FORCE MAIN WITH SERVICE LATERAL BALL VALVE SEG. 0420, OFF. 1027

PENNDOT LEGAL RIGHT-OF-WAY LINE

EX. EDGE OF CURB / CARTWAY

WEST MAIN STREET (SR 0023)

SEG 0420 OFF 0397

SEG 0420 OFF 1072

SEG. 0420 OFF. 1051

3' X 3' CONNECTION PIT (TYP.) ALL PLACES

SERVICE LATERAL BALL VALVE 4' X 4' PIT SEG. 0420, OFF. 0694

4' X 4' PIT RESTORE AS REQUIRED (TYP.)

PROPOSED 12" DR-17 HDPE FORCE MAIN INSTALLED A 36" WIDE TRENCH (TYP.)

RE-ESTABLISH PAVEMENT MARKINGS AS REQUIRED SEG. 0420, OFF. 0998 TO SEG. 0420, OFF. 1005

DART ROAD (PRIVATE)

N/F DART CONTAINER CORPORATION OF PENNSYLVANIA 60 EAST MAIN STREET ACCT. # 360-62966-0-0000 DEED BOOK 5163, PAGE 614 SUBDIVISION PLAN BOOK J-205-62

N/F 82 EAST MAIN STREET DEVELOPMENT 82 EAST MAIN STREET ACCT. # 360-18163-0-0000 DEED DOC. # 6075697 SUBDIVISION PLAN BOOK J-194-17

MATCHLINE STA. 90+20

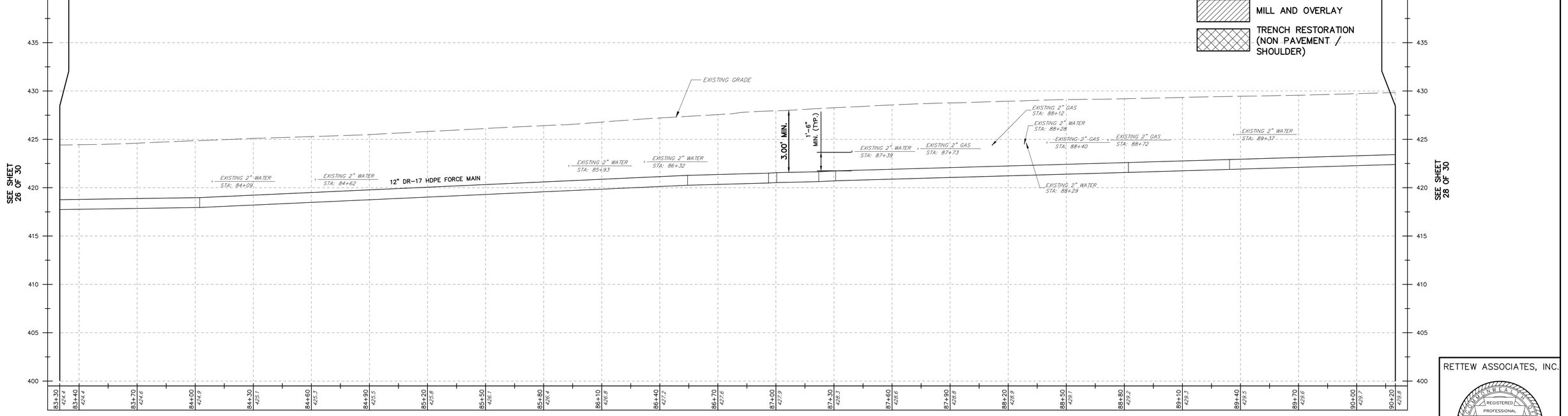
SEE SHEET 28 OF 30

NOTES:

1. IN THE AREAS WHERE SERVICE CONNECTIONS IMPACT EXISTING CURB AND SIDEWALK: SAWCUT SIDEWALK AT EXISTING PANEL JOINTS AND REPLACE THE FULL CONCRETE PANEL, MATCHING EXISTING SLOPES AND GRADES. WHEN CONCRETE CURB IS REMOVED, REPLACEMENT SHALL EXTEND TO THE NEAREST CONTRACTION JOINT OR NEAREST SOUND JOINT ON EITHER SIDE. PROVIDE EXPANSION JOINT MATERIAL AT EACH END IN ACCORDANCE WITH RC-64M. SEE SHEETS 10-14 OF 30 FOR RESTORATION DETAILS.

FORCE MAIN PLAN

SCALE: 1"=25'



FORCE MAIN PROFILE

HORIZ. SCALE: 1"=25'
VERT. SCALE: 1"=5'

CONSTRUCTION PLAN

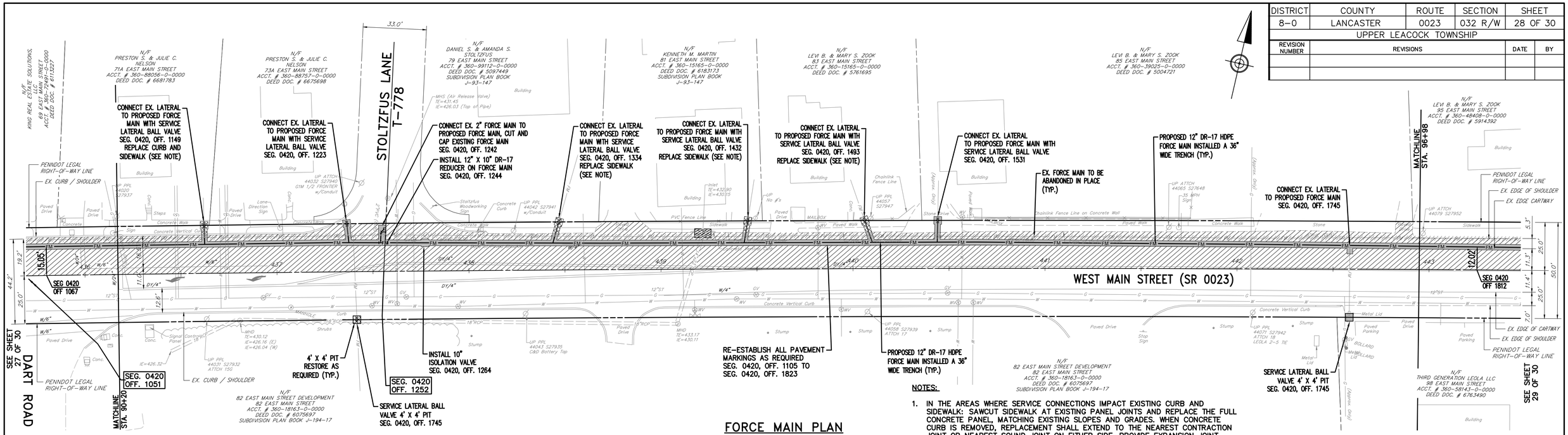
RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

CADD FILE:	CLIENT		MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
C:\CADD\System\Software\Autodesk\TempACAD\TempDWG\AcPublish_17676\0571404139-TR-ROADIMP.dwg	UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY 161 NEWPORT ROAD LEOLA PA, 17540	RETTEW. 3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	NICK LEIDY	DATA COLLECTOR
			DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	28 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY



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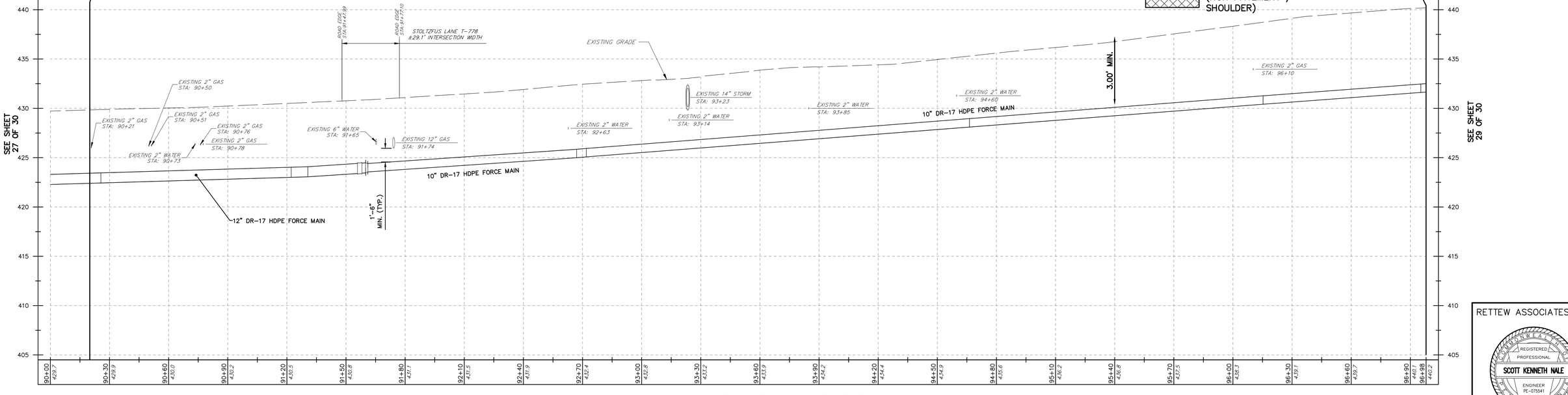

FORCE MAIN PROFILE

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CONSTRUCTION PLAN

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

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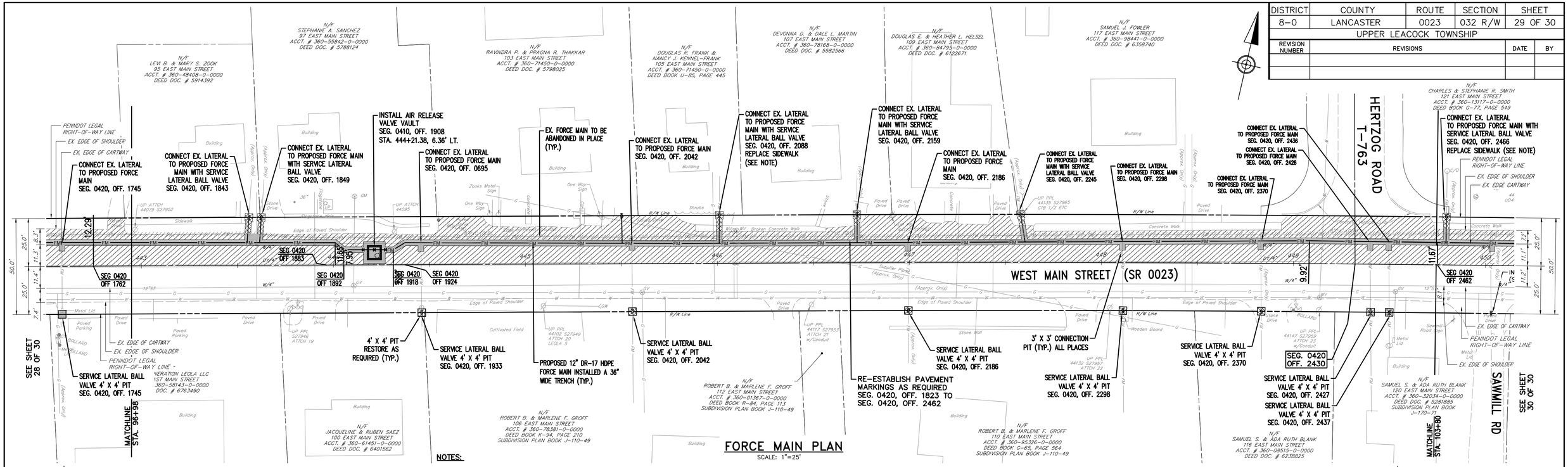
		3020 Columbia Ave., Lancaster, PA 17603 (717) 394-3721 · Fax (717) 394-1063 Akron-Canton, OH · St. Clairsville, OH Lehigh Valley, PA · Morgantown, WV · Mechanicsburg, PA Berwyn, PA · Pittsburgh, PA · Williamsport, PA State College, PA	DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	LANCASTER	0023	032 R/W	29 OF 30
UPPER LEACOCK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY



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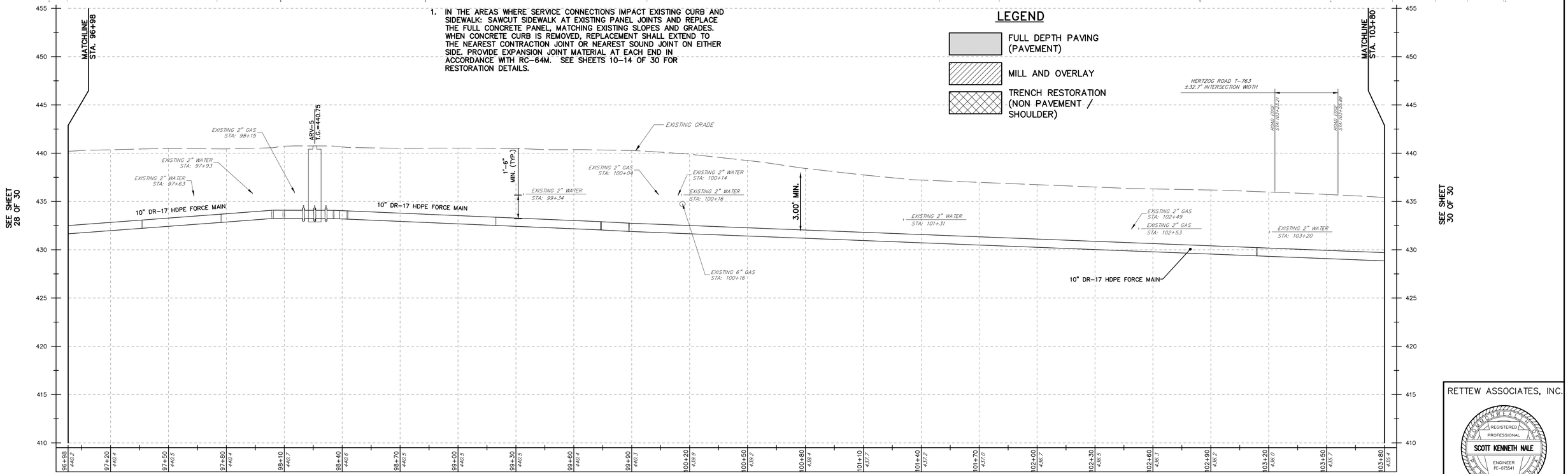

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CONSTRUCTION PLAN

RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — SCOTT KENNETH NALE — ENGINEER PE-075541

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CLIENT
UPPER LEACOCK TOWNSHIP MUNICIPAL AUTHORITY
161 NEWPORT ROAD
LEOLA PA, 17540

RETTEW.

3020 Columbia Ave., Lancaster, PA 17603
(717) 394-3721 - Fax (717) 394-1063
Akron-Canton, OH - St. Clairsville, OH
Lehigh Valley, PA - Morgantown, WV - Mechanicsburg, PA
Berwyn, PA - Pittsburgh, PA - Williamsport, PA
State College, PA

MANAGER:	DESIGN BY:	DRAWN BY:	PARTY CHIEF:	FIELDBOOK NO.
ABRAHAM KING, PE	ANDREW FERKO	RODNEY ANDERSON	NICK LEIDY	DATA COLLECTOR
DATE:	CHECKED BY:	CHECKED BY:	CHECKED BY:	RETTEW PROJECT NO.
JUNE 12, 2026	SCOTT NALE	BRUCE MILLER	RYAN RETTEW	0571404139

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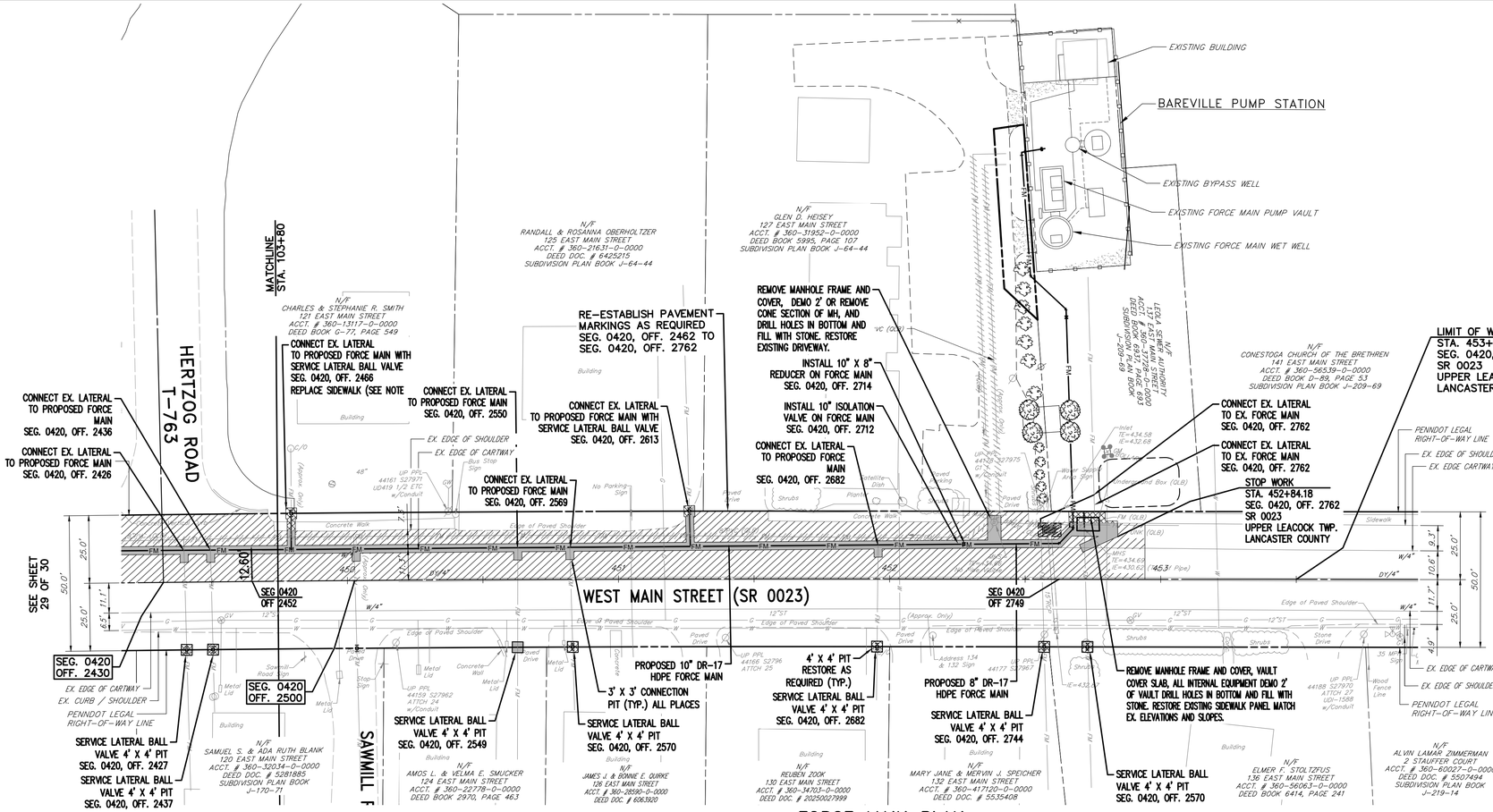

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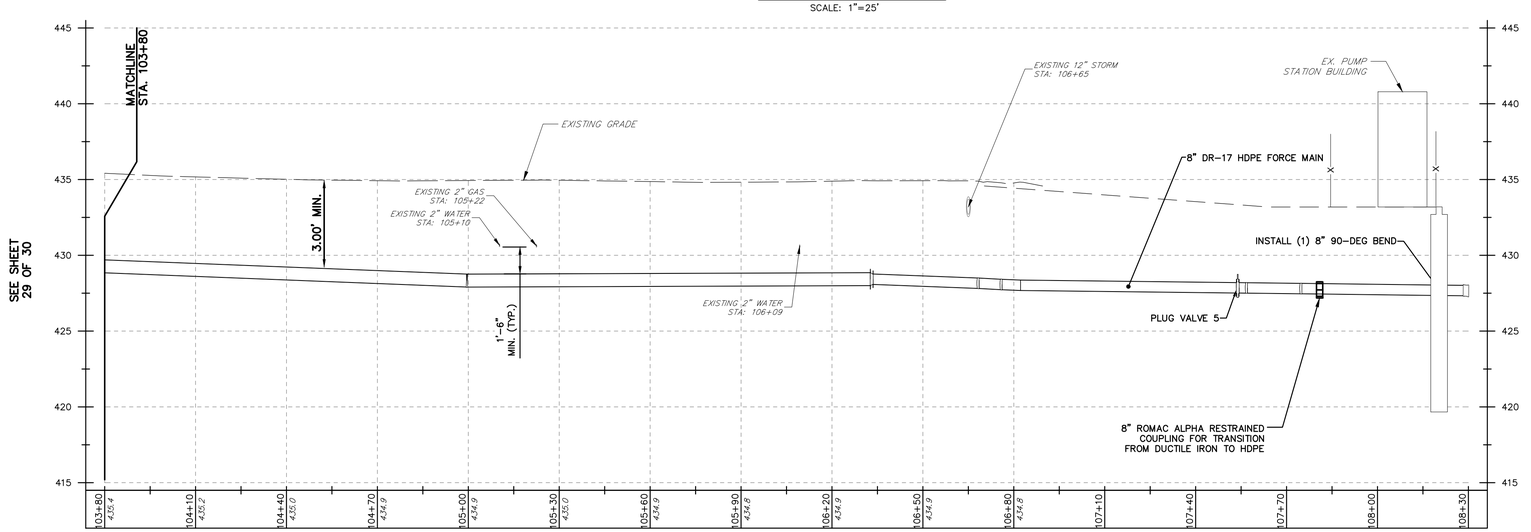

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RETTEW ASSOCIATES, INC.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL SCOTT KENNETH NALE ENGINEER PE-075541

CONSTRUCTION PLAN

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				DATE: JUNE 12, 2026	CHECKED BY: SCOTT NALE	CHECKED BY: BRUCE MILLER	CHECKED BY: RYAN RETTEW	RETTEW PROJECT NO. 0571404139

Appendix D

LSA Grant

(Pending)

RETTEW
We answer to you.