City of Dover

January 23, 2026

To Whom It May Concern:

The City of Dover will receive sealed bids on February 26, 2026, at 2:00 PM local time for the purpose of contracting for **WATER STREET FLOODING IMPROVEMENTS, BID NUMBER 26-0013WW.** The bid must be submitted with one (1) paper copy and one (1) electronic copy on either a CD/DVD or flash drive in a sealed envelope to: City of Dover Procurement Office, 710 William Street, Dover, DE 19904. **All vendors must complete the Intent to Bid notice and send it via email to doverwhse@dover.de.us or by fax to (302) 736-7178 if they intend to submit a bid. Any vendor not returning the form may not receive published addenda.**

A non-mandatory pre-bid meeting will be held on February 5, 2026, at 10:00 A.M. The meeting will be at the JW Pitts Center located at 10 Electric Avenue, Dover, DE 19904.

Your submission is not revocable for ninety (90) days following the response deadline indicated above.

LATE SUBMISSIONS:

A bid received after the closing date and time for receipt of the bids is late and shall not be considered. It is the responsibility of the submitter to ensure that the bid is received prior to the closing date and time.

QUESTIONS:

If you have questions concerning this Intent to Bid, they must be made in writing and emailed to me at doverwhse@dover.de.us. **All questions must be submitted no later than February 12, 2026**. All questions will be compiled and answered in the form of an addendum and will be emailed to all prospective bidders who return the attached ITB notice and will be posted on the City of Dover web site, https://www.cityofdover.com/bid-procurement. All changes or corrections to this Intent to Bid will be handled by addenda issued by the Purchasing Office. The receipt of all addenda must be acknowledged in the bid submission.

The City of Dover reserves the right to request corrections, clarifications, and/or additional information pertaining to the bidder's response.

Bids will be opened publicly at the time and place designated in this letter. All bids will be opened in the presence of the Procurement Manager or his/her designee. The main purpose of the bid opening is to reveal the name(s) of the bidder(s), not to serve as a forum for determining the low bidder(s).

The contract shall be awarded within 90 days of the closing date to the bidder who is determined in writing to be most advantageous to the City. All prices must be held firm for a minimum of 90 days from the date of the bid opening. The bids and summaries shall not be open for public inspection until after receipt of a fully executed contract.

Public employees and elected officials must discharge their duties impartially so as to assure competitive access to governmental procurement by responsible contractors. Moreover, they should conduct themselves in such a manner as to foster public confidence in the integrity of City procurement. Dover Code Article II Section 30 (Appendix A of this policy), establishes standards of ethical conduct among public officials and employees. Vendors participating in the City procurement will be disqualified from the procurement if the employee, official or vendor is found to be in violation of the City's ethical standards and a referral of the matter will be presented to the Ethics Commission.

Please reference the City of Dover Purchasing Policy if you have any questions at: https://www.cityofdover.com/media/Purchasing/Policy/Purchasing%20Policy%20Final%2005-23-2022.pdf.

The City of Dover reserves the right to waive technicalities, to reject any or all submissions, or any portion thereof, to advertise for new bids, to proceed to do the work otherwise, or to abandon the work, if in the best interest of the City.

All vendors must completely fill out, sign, date, and return the attached "Consent for Disclosure Under the Freedom of Information Act (FOIA)" form with their submission. Failure to return the completed form will be deemed consent to the disclosure of all information included in the submission after the receipt of a signed contract or issuance of a purchase order. **Any and all proprietary information contained within the bid must be isolated and clearly marked**. The cover must indicate that the bid contains such information.

Minority, women, veteran, service-disabled, veteran, and individuals with disabilities owned vendor preference shall be three percent (3%) of the value of the award. **The vendor must identify qualification and claim to the preference on the submitted bid documents. The vendor must provide authoritative proof of minority ownership such as identification in the certification directory maintained by the State of Delaware Office of Supplier Diversity to qualify for this preference.** This preference is to be considered as a stand-alone and cannot be added to any other preference that may be allowed. This preference shall not apply to subcontractors.

Local vendor preference shall be considered for materials, equipment, construction contracts, and utility contracts. Local vendor preference shall be three percent (3%) of the annual value of

the award. The term local vendor is defined as a gradually increasing range with preference assigned as follows:

Rule 1: Vendor located within the city limits of the City of Dover.
Rule 2: Vendor located within Kent County, Delaware (applicable only if no vendor qualifies under rule 1)
Rule 3: Vendor located within the State of Delaware (applicable only if no vendor qualifies under rules 1 & 2)

In the event that no vendor qualifies under rules 1, 2, or 3, no local vendor preference will be awarded. **The vendor must identify qualification and claim to the preference on the submitted bid documents.** This preference is to be considered as stand-alone and cannot be added to any other preference that may be allowed.

A bid bond or certified check in the amount equivalent to ten percent (10%) of the proposal amount shall be required with each proposal. Acceptable bid security shall be limited to a bid bond in a form satisfactory to the City underwritten by a company licensed to issue bid bonds in this state or a bank certified check. If a bid does not comply with security requirements, it shall be rejected as being non-responsive. The check or bid bond of the bidder to whom the contract is awarded will be forfeited to the City of Dover as liquidated damages in case the contract and performance bond are not executed within fifteen days after receiving official notification of award.

A performance bond shall be required from the successful bidder for a construction contract. Such a bond shall be for the full amount of the contract. If the contractor fails to provide such a bond or a binder within fifteen days of the award of the contract, the award of the contract or the contract shall be void. The bond shall be released by the City of Dover upon successful completion of the contract and upon a detailed inspection of the contracted work.

In the event the contractor does not fulfill its obligations under the terms and conditions of this contract, the City of Dover may contract for an equivalent product on the open market. Any difference in cost between the contract prices herein and the price of open market product shall be the responsibility of the contractor. Under no circumstances shall monies be due the contractor in the event open market products can be obtained below contract cost. Any monies charged to the contractor may be deducted from an open invoice.

Neither the contractor nor the City of Dover shall be held liable for non-performance under the terms and conditions of this contract due but not limited to, government restriction, strike, flood, fire, or unforeseen catastrophe beyond either party's control. Each party shall notify the other in writing of any situation that may prevent performance under the terms and conditions of this contract.

Vendors must provide references to the City of Dover upon request. Vendor references may be checked to verify the bidder’s ability to perform the contract requirements, the quality of work, and the ability to meet obligations.

ENVELOPES MUST BE MARKED "WATER STREET FLOODING IMPROVEMENTS, BID NUMBER 26-0013WW." No faxed or emailed bids will be accepted.

The City of Dover shall have the right to reject any or all bids if deemed to be in the best interest of the City, such as but not limited to local vendor preference and minority vendor preference while awarding.

Sincerely,

Barry Wolfgang
Contract and Procurement Manager
City of Dover
(302) 736-7795
www.cityofdover.com

City of Dover

INTENT TO BID NOTICE

ITB Number: 26-0013WW ITB Opening: February 26, 2026 at 2:00 P.M.

Description: Water Street Flooding Improvements

If you are interested in the Intent to Bid described above, you can download it in Adobe PDF format from our web site http://www.cityofdover.com/bid-procurement. Any amendments or other additional information related to this solicitation will be posted with the original document on the web site.

If you do not have internet access and want to receive this Intent to Bid, all subsequent amendments, or additional information on the bid package, please provide the requested information to:

The City of Dover
Purchasing Office
710 William Street
Dover, DE 19904
Fax: (302) 736-7178, attention Procurement Manager
E-mail: doverwhse@dover.de.us

Please complete the following and return this form to the City of Dover Purchasing Office.

		Vendor Response /Request
Company:		
Address		☐ No submission at this time, please retain on vendor list
		☐ Please send complete bid package
Contact:		☐ I will download the bid package
Phone		☐ I intend to submit
Email		☐ I do not intend to submit

City of Dover

CONSENT FOR DISCLOSURE UNDER THE FREEDOM OF INFORMATION ACT (FOIA)

REQUESTS FOR PROPOSAL AND INVITATIONS TO BID

From time to time, the City of Dover receives requests under the Freedom of Information Act (FOIA) for information submitted in response to Requests for Proposals and Invitations to Bid. This information shall be provided to those who request it under FOIA; however, in accordance with 29 **Del. C.** §10002(l)(2), trade secrets and commercial or financial information obtained from a person which is of a privileged or confidential nature are not deemed public records.

Please indicate your preference regarding the disclosure, under FOIA, of the information that you are submitting by checking the appropriate box and providing the information below. Please note that prior to issue of a purchase order or full execution of a contract, only the names of vendor(s) and bid tabulations will be released for Invitations to Bid, and only the names of vendor(s) and information deemed necessary for City Council to make an informed decision on award approval will be released for Requests for Proposals.

☐ I consent to the disclosure of all information included in this submission.

☐ This submission includes trade secrets and commercial or financial information which is of a privileged or confidential nature that is exempt from disclosure under 29 **Del. C.** §10002(l)(2). In accordance with 29 **Del. C.** §6923(j)(4) and §6924(j)(3), I have isolated and identified in writing the confidential portions of the submitted proposal/bid and attached a statement that explains and supports my claim that the proposal/bid items identified as confidential contain trade secrets or other proprietary data and I am prepared to defend against disclosure. I understand that any items not so identified are subject to disclosure.

Name: _____

Signature: _____ Date: _____

Title/Position: _____

Company Name: _____

Email Address: _____ Telephone: _____

Mailing Address: _____

_____

RFP/Bid No. _____

For additional information, please contact:

City of Dover - City Clerk's Office
P.O. Box 475
Dover, DE 19903
cityclerk@dover.de.us
Phone (302) 736-7008; FAX: (302) 736-5068

Please note that this form is a public record and will be provided to those who request information regarding Requests for Proposals and Invitations to Bid under FOIA.

CITY OF DOVER, DELAWARE

INVITATION TO BID

FOR

WATER STREET FLOODING IMPROVEMENTS

BID NUMBER
26-0013WW

January 2026

Issued By:

City of Dover
Procurement Office
710 William Street
Dover, Delaware 19904
(302) 736-7795
Fax (302) 736-7178

Prepared By:

City of Dover
Department of Water & Wastewater
5 E. Reed St.
Dover, DE 19901
(302) 736-7025

WATER STREET FLOODING IMPROVEMENTS
TABLE OF CONTENTS

APPENDICES

APPENDIX A – City of Dover Standard Operating Procedures (SOPs) Manual

SECTION AFB

ADVERTISEMENT FOR BIDS

Sealed bids will be received on behalf of the City of Dover, (herein called the "Owner") at the City of Dover, City of Dover Procurement Office, 710 William Street, Dover, DE 19904 no later than 2:00 p.m. EST on **Thursday, February 26, 2026**. Bids will then be publicly opened and read aloud immediately thereafter for the following:

Water Street Flooding Improvements
Bid No.: 26-0013WW

Contract Duration Each Phase 120 Days

This work is detailed in the **Water Street Flooding Improvements:**

- **Water Street Flooding Improvements Invitation to Bidders,** contract drawings and generally consists of mobilization and demobilization to site, establish maintenance of traffic, establish sediment and erosion controls, survey and layout of site, installation of the following: Phase I: 921 linear feet of 24-inch (24") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 9' Deep), 72" Round Manhole (Up To 7' Deep), and adjust Curb Ramps (10 each) to meet DELDOT Specifications, Phase II: 377 linear feet of 24-inch (24") reinforced concrete pipe class III, 600 linear feet of 36-inch (36") reinforced concrete pipe class III, 315 linear feet of 48-inch (48") reinforced concrete pipe class III, 310 linear feet of 60-inch (60") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 8' Deep), 66"X 48" Box Manhole (Up To 8' Deep), 84" Round Manhole (Up To 6' Deep), 48"X 48" Box Manhole (Up To 6' Deep), 76" Custom Manhole (Up To 10' Deep), and adjust Curb Ramps (6 each) to meet DELDOT Specifications and Phase III: 481 linear feet of 24-inch (24") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 4' Deep) and adjust Curb Ramps (6 each) to meet DELDOT Specifications. Properly disposing of existing reinforced concrete pipe, and Installation of Manholes as per the Plans provided. Repavement of entire width of the Road as per DEDLOT specifications.

- Drawings and Specifications, including the bid forms, may be obtained, in PDF format, for $50.00 from the City of Dover Department of Water & Wastewater, 5 E Reed St, Dover, DE 19901. Drawings and Specifications Fees are **NON-REFUNDABLE**. If picking up a CD at the Department of Water & Wastewater office, **please contact 302-736-7025 to provide 48 hours' notice before pickup, so that the files will be ready upon arrival.**

Each BID must be accompanied by a BID BOND payable to the Owner for ten (10) percent of the total amount of the BID. No Bidder may withdraw their bid within ninety (90) days after the actual date of the opening thereof. The right is reserved, as the interests of the City of Dover may appear, to reject any and all bids, to waive any information in bids received, and to accept or reject any items of any bid.

Davis Bacon wage rates will apply on this project and are contained in the Contract Documents.

City of Dover, Delaware

By Barry Wolfgang
Contract and Procurement Manager

SECTION ITB

INVITATION TO BID

BID NUMBER: 26-0013WW

Sealed Bids, one (1) paper copy and one (1) electronic copy, will be received by the City of Dover, City of Dover Procurement Office, 710 William Street, Dover, DE 19904 no later than **2:00 P.M.** on **Thursday, February 26, 2026** for the general construction of the **Water Street Flooding Improvements** project, at which time the bids will be opened publicly and read aloud.

I. NAME OF SOLICITING GOVERNMENT

City of Dover, Delaware
City Hall – The Plaza
P.O. Box 475
Dover, Delaware 19903-0475

II. PURPOSE OF REQUEST

A. **Water Street Flooding Improvements**

The work under this project generally consists of mobilization and demobilization to site, establish maintenance of traffic, establish sediment and erosion controls, survey and layout of site, installation of the following: Phase I: 921 linear feet of 24-inch (24") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 9' Deep), 72" Round Manhole (Up To 7' Deep), and adjust Curb Ramps (10 each) to meet DELDOT Specifications, Phase II: 377 linear feet of 24-inch (24") reinforced concrete pipe class III, 600 linear feet of 36-inch (36") reinforced concrete pipe class III, 315 linear feet of 48-inch (48") reinforced concrete pipe class III, 310 linear feet of 60-inch (60") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 8' Deep), 66"X 48" Box Manhole (Up To 8' Deep), 84" Round Manhole (Up To 6' Deep), 48"X 48" Box Manhole (Up To 6' Deep), 76" Custom Manhole (Up To 10' Deep), and adjust Curb Ramps (6 each) to meet DELDOT Specifications and Phase III: 481 linear feet of 24-inch (24") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 4' Deep) and adjust Curb Ramps (6 each) to meet DELDOT Specifications. Properly disposing of existing reinforced concrete pipe, and Installation of Manholes as per the Plans provided. Repavement of entire width of the Road as per DEDLOT specifications.

B. The Contractor shall and will furnish and deliver to the City all labor, materials and equipment to successfully complete the work of this Contract, of which all construction documents are a part, and all other appurtenances and incidental items of the work complete and in place.

C. The City of Dover (the City) invites written bids from qualified contractors that are interested in providing services, as outlined below.

III. SCOPE OF WORK

D. The work to be done is covered in the Construction Documents (Drawings) titled Water Street Flooding Improvements and in the project technical specifications titled Water Street Flooding Improvements, section 01 11 00 Summary of Work.

A. All implements, machinery, tools, maintenance of traffic (traffic control), equipment, material, shall be provided by the contractor, including the labor necessary for the installation of the new water main and abandonment of existing piping, and shall furnish and do everything necessary to make the work perfect, complete, neat and finished, and the Contractor shall leave all the work to be done under this Contract in this condition at the time the work is finally inspected.

IV. STATEMENT OF QUALIFICATIONS (SOQ)

A. All contractors submitting bids shall include the following: an acceptable experience record, an acceptable equipment schedule and any other documents deemed necessary by the City of Dover. Below is a detailed list of the items that must be submitted to the City of Dover on the date of the bid opening.

1. Business name and contact person, together with the address, telephone number, facsimile number and email address, of the office from which the services will be provided.

2. Proof of insurance, complying with the **Instructions to Bidders** Section, including the following documentation:

    - Certificate of Insurance
    - Declaration Page
    - Insurance policy documents (upon receipt of Contract)

3. A financial statement prepared by an independent certified public accountant or an independent public accountant holding a valid permit issued by an appropriate State licensing agency and shall have been so prepared as to reflect the financial status of the submitting company. This statement must be current and not more than one (1) year old. In the case that the bid date falls within the time that a new statement is being prepared, the previous statement shall be updated by proper verification.

4. Identify the personnel who will manage and supervise this project, as well as the staff responsible for jobsite safety, quality control and other specialties. Provide each person's title and project-specific responsibilities, and resume. Lack of detailed information on the resumes may result in a less favorable evaluation. Provide an organization chart diagram if necessary to clearly explain the lines of authority, duties & responsibilities.

5. The bidder shall provide documentation showing satisfactory performance as the prime contractor (General Contractor) responsible for the complete construction of five (5) similar projects within the past five (5) years. Projects considered "similar" to the Flooding Improvement project are defined as those with two or more of the following characteristics:

    - Experience in construction of similar sized stormwater infrastructure upgrade projects
    - Experience in construction of any sized stormwater infrastructure

upgrade projects
- Experience with any underground utility construction in the State of Delaware

6. Documentation that the business is licensed, insured, and authorized to do work in the State of Delaware as well as the City of Dover.

7. A minimum of three (3) references must be provided. Governmental references preferred. For each reference listed, the information provided should consist of the following:
   - **Name and mailing address of the owner/business**
   - **Name and telephone number of your contact person within said business**

   Provide a list of references the City may contact in order to assist in the evaluation of your past performance. Please limit these references to owners of projects that involved the installation/replacement of water mains.

8. The City's plan is to complete the proposed work by the end of September 2026. Provide documentation stating that your business has the available equipment, manpower resources and ability to meet the proposed schedule.

9. Provide documentation that shows that your business has a current safety plan and or policy in place and conducts periodic safety training.

10. Information on the nature and magnitude of any litigation or proceeding whereby, during the past three (3) years, a court or any administrative agency has ruled against the bidder in any matter related to the professional activities of the bidder. Similar information shall be provided for any current or pending litigation or proceeding.

11. A statement to the effect that the selection of the bidder shall not result in a conflict of interest with any other party which may be affected by the work to be undertaken. Should any potential or existing conflict be known by a bidder, said bidder must specify the party with which the conflict exists or might arise, the nature of the conflict, and whether or not the proposer would step aside or resign from the engagement or representation creating the conflict. (The City reserves the right to select more than one firm to perform the required services to avoid conflict of interest and other similar occurrences.)

12. Any additional information that you feel will be beneficial to the City in evaluating your qualifications to perform the proposed scope of work.

V. COMPENSATION

A. The bid should clearly state the fee to be charged for the proposed work and should be provided on the attached Bid Form one (1) copy.

END OF SECTION ITB

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INSTRUCTIONS TO BIDDERS

I. BID SUBMISSION

A. All bids should be delivered to:

Barry Wolfgang
Contract and Procurement Manager
City of Dover Procurement Office
710 William Street
Dover, Delaware 19904

B. Questions regarding scope of services or bid process:

1. To ensure fair consideration for all bidders, communication to or with any department or departmental staff during the submission process, will be prohibited except as provided in the third paragraph below. Any communication between proposer and the City will be initiated by the appropriate staff member in order to obtain information or clarification needed to develop a proper, accurate evaluation of the bid. Such communications initiated by a bidder may be grounds for disqualifying the offending bidder from consideration for award of the bid and/or any future bid.

2. Any questions relative to interpretation of the scope of services or the bid process, shall be addressed as indicated below, in ample time before the period set for the receipt and opening of bids.

3. Questions or comments should be directed **in writing** to:

Barry Wolfgang
Contract and Procurement Manager
City of Dover Procurement Office
710 William Street
Dover, Delaware 19904
E-mail address: Doverwhse@dover.de.us

C. In order to be acceptable, **one (1) paper copy and one (1) electronic copy of the bid must be submitted in a sealed envelope on the outside of which shall be plainly marked "Sealed Bid: Water Street Flooding Improvements, ITB Bid Opening February 26, 2026. Bid No.: 26-0013WW** with the name, address, and license number, if applicable, of the company submitting the bid. Bids will be received until **2:00 P.M.** or hand delivered no later than **2:00 P.M.** on **February 26, 2026**, at which time they will be publicly opened in the **City of Dover Procurement Office, 710 William Street, Dover, Delaware 19904**.

D. Bidders are fully responsible for the timely delivery of bids. Late bids will not be accepted and will be returned to the proposer unopened. Telegraph, telephone, facsimile machine, and electronic mail proposals will not be accepted under any circumstances.

E. In the event that personal interviews are deemed necessary, and your business is included among those selected for interview, you will be contacted in order to schedule a mutually agreeable date and time for the interview.

F. It is anticipated that a final decision on the business to be selected will be made within 30 days or upon approval by City Council, whichever occurs earlier. All bidders will subsequently be contacted and advised of the Department's decision.

II. TERMS AND CONDITIONS

A. The City reserves the right to reject any or all bids, with or without cause, to waive technicalities, or to accept the bid, which in its judgment best serves the interests of the City. The City further reserves the right to award the contract to the next most qualified bidder if the successful bidder does not execute a contract within thirty (30) days after being notified of the award of the bid.

B. The City reserves the right to request clarification of information submitted and to request additional information from one or more bidders. All costs associated with the presentation of the proposal and any supplemental information shall be borne solely by the bidder, and shall not be passed on to the City under any circumstances.

C. Any bid may be withdrawn until the date and time stated above for the opening of the bids. Any bids not so withdrawn shall constitute an irrevocable offer to sell to the City the services indicated for a period of ninety (90) days, or until one or more of the bids have been accepted by the Department, whichever occurs earlier.

D. Any written agreement or contract resulting from the acceptance of a bid shall be prepared on forms either supplied by or approved by the City, and shall contain, at a minimum, applicable provisions of this request for proposals. The City reserves the right to reject any agreement that does not conform to the request for proposals or any other City requirements for agreements and contracts. The following are representative of the provisions to be included within the contract documents:

1. Termination - If through any cause, the firm selected shall fail to fulfill the obligations agreed to in a timely and efficient manner, the City shall have the right to terminate the contract by specifying the date of termination in a written notice to the firm at least thirty (30) days before the termination date. In this event, the firm shall be entitled to just and equitable compensation for the work satisfactorily completed.

2. Assignment - The bidder shall not assign any interest in the contract, and shall not transfer any interest in the same without the prior written consent of the City.

3. Non-discrimination - The successful proposer must specify in the contract that the firm will not discriminate under the contract, against any person as provided in any federal, state, or local government laws and regulations.

4. Certificate of Insurance - The contractor selected must present proof of insurance coverage of a nature and amount deemed adequate by the City, and be willing to execute a hold harmless indemnification for the City.

5. Publication of Information - No reports, information, or data given to or prepared by the firm under the contract shall be made available to any individual or organization by the firm without the prior written approval of the City. This provision shall only apply insofar as it does not conflict with the provisions of the Freedom of Information Act.

E. The successful Bidder shall be required to enter into a contract with the City of Dover which shall reflect the services requested in the Invitation to Bid, without delay upon notice of award of contract.

III. INSURANCE REQUIREMENTS

A. Policies Required. Prior to the commencement of any work and until completion and final payment is made for the work / final acceptance of the work for the Project Bid No. 26-0013WW the Contractor will provide and maintain the following minimum levels of insurance at Contractor's own expense. The cost of the required insurance shall be included in the Contractor's bid price and no adjustment shall be made to the contract price on account of such costs unless such approval is provided. The term Contractor shall include Subcontractors and Sub-Subcontractors of every tier. Contractor shall furnish Certificates of Insurance evidencing and reflecting the effective date of coverage as outlined below. In no event shall Work be performed until the required evidence of Insurance is provided in accordance with these Contract Documents and is approved by the City of Dover. If found to be non-compliant, the City of Dover may purchase the required insurance coverage(s) and the cost will be borne by the Contractor through direct payment/reimbursement to the City of Dover or the City of Dover may withhold payment to the Contractor for amounts owed to them.

a. All insurance shall be procured from insurers permitted to do business in the State in which the project is taking place and having an A.M. Best Rating of at least "A-, Class VIII".

b. Contractor shall not have a Self Insured Retention (SIR) on any policy greater than $50,000, which is the responsibility of the Contractor. If Contractor's policy(ies) has a Self Insured Retention exceeding this amount, approval must be received from the City of Dover prior to starting work. In the event any policy includes an SIR, the Contractor is solely responsible for payment within the SIR of their policy(ies) and the Additional Insured requirements specified herein shall be provided within the SIR amount(s).

c. All insurance required herein, with the exception of the Professional Liability Insurance, shall be written on an "occurrence" basis. Claims-Made coverage must include:

   i. The retroactive date must be on or prior to the start of work under this contract; and
   ii. The Contractor must purchase "tail coverage/an extended reporting period" or maintain coverage for a period of three years, subsequent to the completion of their work / final payment.

d. The Contractor's insurance carrier (s) shall agree to provide at least thirty (30) days prior written notice to the City of Dover in the event coverage is canceled or non-renewed. In the event of cancellation or non-renewal of coverage(s), it is the Contractor's responsibility to replace coverage to comply with the Contract requirements so there is no lapse of coverage for any time period.

In the event the insurance carriers will not issue or endorse their policy(s) to comply with the above it is the responsibility of the Contractor to report any notice of cancellation or non-renewal at least thirty (30) days prior to the effective date of this notice.

e. Contractor shall provide the City of Dover with Certificates of Insurance, evidencing the insurance coverages listed below, ten days prior to the start of work and thereafter upon renewal or replacement of each coverage. The Contractor shall not begin any work until the City of Dover has reviewed and approved the Certificate of Insurance. The required insurance shall not contain any exclusions or endorsements, which are not acceptable to the City of Dover.

   Failure of the City of Dover to demand such certificate or other evidence of full compliance with these insurance requirements or failure of the City of Dover to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

   With respect to insurance maintained after final payment in compliance with a requirement below, an additional certificate(s) evidencing such coverage shall be provided to the City of Dover with final application for payment and thereafter upon renewal or replacement of such insurance until the expiration of the time period for which such insurance must be maintained.

f. Owner/Client and the City of Dover, (including the City of Dover's Parent, Subsidiaries, and Affiliates) shall be added as ADDITIONAL INSUREDS on all liability policies (except Workers' Compensation and Professional Liability Policy, where applicable), for ongoing operations and completed operations (using ISO Endorsements CG 2010 and CG 2037, or their equivalents) on a primary noncontributory basis. Coverage to include ongoing and completed operations. Each of the Additional Insured's respective directors, officers, partners, members, employees, agents and representatives shall also be afforded coverage as an Additional Insured. Coverage should be provided for a period of three years subsequent to the completion of work/final payment.

   If you are operating in a state that has implemented the "Anti-Indemnity" Additional Insured Endorsements, you are required to provide the state specific additional insured endorsements for ongoing and completed operations. These states include but are not limited to: Montana, New Mexico, Oregon, Colorado, Kansas, California, Louisiana, and Texas.

   The City of Dover reserves the right to require Contractor to name other parties as additional insureds as required by the City of Dover.

   There shall be no "Insured versus Insured Exclusion" on any policies (other than "Named Insured versus Named Insured"); all policies will provide for "cross liability coverage" as per standard ISO policy forms.

g. Waiver of Rights of Subrogation: Contractor shall waive all rights of recovery against Owner/Client, the City of Dover and all the additional insureds for loss or damage covered by any of the insurance maintained by the Contractor.

h. The amount of insurance provided in the required insurance coverages, shall not be construed to be a limitation of the liability on the part of the Contractor.

i. The carrying of insurance described shall in no way be interpreted as relieving the Contractor of any responsibility or liability under the contract.

j. Any type of insurance or any increase in limits of liability not described above which the Contractor requires for its own protection or on account of statute shall be its own expense.

k. Contractor shall promptly notify the City of Dover and the appropriate insurance company(ies) in writing of any accident(s) as well as any claim, suit or process received by the Contractor arising in the course of operations under the contract. The Contractor shall forward such documents received to his insurance company(ies), as soon as practicable, or as required by their insurance policy(ies).

REQUIRED COVERAGES - the following may be provided through a combination of primary and excess policies in order to meet the minimum limits set forth below:

1. Worker's Compensation and Employers' Liability Insurance. Statutory worker's compensation benefits and employers' liability insurance with a limit of liability no less than that required by Delaware law at the time of the application of this provision for each accident. This policy shall be endorsed to include a waiver of subrogation in favor of the City of Dover. The Contractor shall require subcontractors and others not protected under its insurance to obtain and maintain insurance that includes:

    a. Workers' Compensation Coverage: Statutory Requirements

    b. Employers Liability Limits not less than:

Bodily Injury by Accident:	$100,000 Each Accident
Bodily Injury by Disease:	$100,000 Each Employee
Bodily Injury by Disease:	$500,000 Policy Limit

    c. USL&H, Maritime Liability, FELA, and DBA Coverage, if applicable.

    d. Includes coverage for sole proprietors, partners, members or officers who will be performing the work.

    e. Where applicable, if the Contractor is lending or leasing its employees to the City of Dover for the work under this contract (e.g. crane rental with operator), it is the Contractor's responsibility to provide the Workers Compensation and Employer's Liability coverage and to have their policy endorsed with the proper Alternate Employer Endorsement in favor the City of Dover.

2. Commercial General Liability Insurance. Policy will be written to provide coverage for, but not limited to, the following: premises and operations, products and completed operations, personal injury, blanket contractual coverage, broad form property damage, independent contractor's coverage with Limits of liability not less than the following:

    a. Occurrence Form with the following limits:

        i. General Aggregate: $2,000,000
        ii. Products/Completed Operations Aggregate: $2,000,000
        iii. Each Occurrence: $1,000,000
        iv. Personal and Advertising Injury: $1,000,000

    b. Products/Completed Operations Coverage must be maintained for a period of at least three (3) years after final payment / completion of work (including coverage for the Additional Insureds as set forth in these Insurance Requirements).

    c. The General Aggregate Limit must apply on a **Per Project basis**.

    d. No Exclusions for residential construction with respect to the work to be completed by the Contractor.

    e. Coverage for "Resulting Damage".

    f. No sexual abuse or molestation exclusion.

    g. No amendment to the definition of an "Insured Contract".

    h. The definition of an "Insured Contract" must be amended to provide coverage for all work on or within 50 feet of a railroad, if applicable. A stand alone Railroad Protective Liability policy may be required based on the scope of this project.

3. Automobile Liability Insurance.

    a. Coverage to include All Owned, Hired and Non-Owned Vehicles (or "Any Auto"), if you do not have any Owned Vehicles you are still required to maintain coverage for Hired and Non-Owned Vehicles as either a stand alone policy or endorsed onto the Commercial General Liability policy above

    b. Per Accident Combined Single Limit $1,000,000

    c. For Contractor(s) involved in the transportation of hazardous material, include the following endorsements: MCS-90 and ISO-9948.

4. Commercial Umbrella Liability:

    a. Policy(ies) to apply on a Following Form Basis of the following:
        i. Commercial General Liability,
        ii. Automobile Liability, and
        iii. Employers Liability Coverage.

b. Minimum Limits of Liability
Occurrence Limit: $5,000,000

c. Aggregate Limit (where applicable): $5,000,000

5. Rigger's Liability Insurance:
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

a. "All Risk" Replacement Cost Coverage

b. No overload exclusion

c. Minimum Occurrence Limit: $1,000,000

6. Pollution Liability Insurance:
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

a. Covering losses caused by pollution incidents that arise from the operations of the Contractor and /or their subcontractors of any tier.

b. Minimum Limits of Liability:
Occurrence Limit: $2,000,000
Aggregate Limit: $2,000,000

c. Insurance to be maintained for the duration of the work and for a period of three (3) years after completion of work / final payment.

d. No Exclusions for Silica, Asbestos or Lead.

e. Include Mold Coverage for full policy limit of liability.

f. Shall include coverage for all pollutants as defined under the Resource Conservation and Recovery Act, as amended, 42 U.S.C. Section 6901 et. Seq. ("RCRA") or any related state or city environmental statute or the removal of any petroleum contaminated material at the project.

g. All owned and / or 3rd Party disposal facilities must be licensed and maintain pollution liability insurance of not less than $2,000,000, if applicable.

7. Aircraft Liability and/or Unmanned Aircraft Systems (UAS, aka Drones):
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

a. Provide coverage for bodily injury, property damage, personal and advertising injury arising out of any owned, leased, hired, or borrowed aircraft or UAS; and

b. Minimum Limits of Liability
Per Occurrence Limit: $5,000,000
Aggregate Limit: $5,000,000

NOTE: If UAS are covered by the General Liability policy instead of an Aviation Policy, coverage must be provided by CG 24 50 (or its equivalent) for "any aircraft used in the Insured's operations" for "any operations or projects of the Insured".

8. Crime Insurance:
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

    a. Provide coverage for bodily injury, property damage, personal and advertising injury arising out of any owned, leased, hired, or borrowed aircraft or UAS; and

    b. Minimum Limits of Liability

Per Occurrence Limit:	$5,000,000
Aggregate Limit:	$5,000,000

9. Owner's Contractor's Protective:
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

    a. The Contractor shall obtain an Owner's and Contractor's Protective in the same limits as set forth in #2, Commercial General Liability, above. This policy shall be issued in the name of the Owner.

    b. If you are providing ongoing and completed operations Additional Insured coverage for one of the following states, noted in "f" above (Montana, New Mexico, Oregon, Colorado, Kansas, California, Louisiana, and Texas) you are required to provide an Owner's Contractor's Protective as outlined in the preceding paragraph.

10. Owned, Leased, Rented or Borrowed Equipment:
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

    Contractor shall maintain Property Coverage for:

    a. their owned, leased, rented or borrowed equipment, tools, trailers, etc.; and

    b. include a Waiver of Subrogation in favor of all Additional Insureds.

11. Installation Floater:
(If designated by **CONTRACTOR'S** scope of work).

    a. Contractor shall provide coverage for damage to property in the course of installation or transit to the installation site.

    b. Coverage shall be equal to the full replacement cost of the equipment or materials being installed. Coverage shall also be provided for any ensuing loss of Business or Rental Income.

    c. Contractor must determine if the Installation Floater policy, if in place for this project, is adequate to protect the interests of Owner.

    d. Include a Waiver of Subrogation in favor of all Additional Insureds.

12. Qualification; Priority; Contractors' Coverage. The insurer must be authorized to do business under the laws of the State of Delaware. Such insurance will be primary. All contractors and all of their subcontractors who perform work on behalf of Contractor shall be responsible for carrying, in full force and effect, worker's compensation and employer's liability, and automobile liability insurance coverage.

13. Certificate of Insurance; Other Requirements. At the execution of this Agreement and prior to each insurance policy expiration date during the term of this Agreement, Contractor will furnish the City of Dover with a Certificate of Insurance with the CITY named as an additional insured. The Certificate shall reference this Agreement and worker's compensation and property insurance waivers of subrogation required by this Agreement. The City of Dover shall be given thirty (30) calendar days advance notice of cancellation or nonrenewal of insurance during the term of this Agreement.

14. Limits. The limits of liability set out in this Agreement may be increased by mutual consent of the parties, which consent will not be unreasonably withheld by either party, in the event of any factors or occurrences, including substantial increases in the level of jury verdicts or judgments or the passage of state, federal or other governmental compensation plans, or laws which would materially increase the City of Dover's exposure to risk.

15. Deductible/Self-insurance Retention Amounts. Contractor shall be fully responsible for any deductible or self-insured retention amounts contained in its insurance program or for any deficiencies in the amounts of insurance maintained.

V. BID PROCESS SCHEDULE

A. The City will use the following tentative timetable in the selection process:

Date	Event
Thursday, January 23 & 30, 2026	Publicly Advertise ITB #26-0005WW.
Thursday, February 5, 2026	**NON-MANDATORY** pre-bid meeting. Doors will open at 10am.
Thursday, February 12, 2026	Deadline for submitting questions
Thursday, February 19, 2026	Addendum issued/answers to bidder questions published.
Thursday, February 26, 2026	**BID OPENING Deadline to submit final bids (Bid Opening). (1 original copy by 2:00 pm)**
Thursday, March 26, 2026	City Completes Evaluation of Bids
Thursday, April 23, 2026	City Issues Notice of Award
Thursday, April 30, 2026	Notice to Proceed

END OF SECTION IB

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SECTION IFB

INFORMATION FOR BIDDERS

Bids will be received by the City of Dover (herein called the "OWNER") at the City of Dover, City of Dover Procurement Office, 710 William Street, Dover, Delaware 19904, at the date and time stated in the Invitation to Bidders.

Each bid must be submitted in a sealed envelope, addressed to the City of Dover, Attn: Mr. Barry Wolfgang, City of Dover Procurement Office, 710 William Street, Dover, Delaware 19904. Each sealed envelope containing a BID must be plainly marked **"Sealed Bid: Water Street Flooding Improvements, ITB Opening Thursday, February 26, 2026. Bid No.: 26-0013WW "** and the envelope should bear on the outside the name of the BIDDER, his address, his license number, if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at the City of Dover, 710 William Street, Dover, Delaware 19904.

All BIDS must be made on the required Bid form. All blank spaces for bid prices must be filled in, in ink or typewritten, and the Bid form must be fully completed and executed when submitted. One (1) hard copy of the Bid form and one electronic copy on a flash drive or CD/DVD are required.

The OWNER may waive any informalities or minor defects or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any proposal received after the time and date specified shall not be considered. No BIDDER may withdraw a proposal within ninety (90) days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID FORM by examination of the site and review of the drawings and specifications including ADDENDA.

Products or equipment of manufactures not named in the specifications may be bid as an "or equal" by using the Add/Deduct Items Section of the Bid Form and stating the name of the substitute manufacturer and the amount to be added to or deducted from the total bid. The evaluation of the bids will be based on using only the named manufacturers unless costs exceed available funds. BIDDER shall list manufacturers of major products and equipment in conformance with specified equipment.

After bids have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the contract.

Each bid must be accompanied by a BID BOND payable to the OWNER in the amount of ten (10%) percent of the total amount of the BID. When the Agreement is executed the BID BONDS of the unsuccessful BIDDERS will be returned. A certified check may be used in lieu of a BID BOND.

A PERFORMANCE BOND in the amount of one hundred (100%) percent of the CONTRACT PRICE, with a corporate surety approval by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BOND, and/or PERFORMANCE BOND must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the PERFORMANCE BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may at his option consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER shall, within ten (10) days of receipt of acceptable PERFORMANCE BOND, and Agreement signed by the party to whom the Agreement was awarded, sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and the CONTRACTOR.

The OWNER may take such investigations as he deems necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

To demonstrate qualifications for performing the WORK identified within the CONTRACT DOCUMENTS, BIDDERS have been requested to submit written evidence of previous experience, current commitments, and license to perform work in the State of Delaware as stated in the Invitation to Bidders. Failure to submit the requested information will be deemed sufficient to disqualify the BIDDER.

A conditional or qualified BID will not be accepted. Award will be made to the lowest responsible BIDDER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to his BID.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when requested to do so by the OWNER.

The ENGINEER is City of Dover Department of Water & Wastewater, Attn: Jason A. Lyon, P.E., P.O. Box 475, Dover, Delaware 19903, Phone: 302-736-7025.

END OF SECTION IFB

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SECTION BF

BID FORM

Date:_____

Bid of_____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of Delaware doing business as _____*. To the City of Dover (hereinafter called "OWNER").

In compliance with the Invitation to Bid, BIDDER hereby proposes to perform all WORK for the **Water Street Flooding Improvements, Invitation to Bidders, Bid No.: 26-0013WW**, in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below. The BIDDER has examined the Drawings and Specifications with related documents and the site of the proposed work, being familiar with all of the conditions surrounding the construction of the proposed project including materials and supplies, and to construct the project in accordance with the CONTRACT DOCUMENTS at the price stated below. The price is to cover all expenses incurred in performing the work required under the Contract Documents of which this Bid is a part.

The BIDDER declares that the attached Specifications and the Drawings therein referred to have been carefully examined and are understood. It is proposed and agreed if the Bid is accepted to contract with the City of Dover the required work in the manner set forth in the Specifications and shown by the Drawings.

*Corporation, Partnership, or Individual as applicable.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete each Phase within 120 consecutive calendar days thereafter. Liquidated damages of $500 per day will be in effect with this PROJECT, refer to section 01 00 00 General Requirements.

BIDDER acknowledges receipt of the following ADDENDUM (if applicable):

_____ _____

The BIDDER declares that the only person, firm or corporation, or persons, firms or corporations, that has or have any interest in this bid or in the Contract or Contracts proposed to be taken is or are the undersigned; that this bid is made without any connection or collusion with any person, firm or corporation, making a bid for the same work.

Items to be included with Bid:
____ Completed Bid Form (1 Copy) and one electronic copy
____ Bidders Statement of Qualifications
____ Bid Bond (10% of the total amount of the BID)

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within 10 days and deliver.

The names and addresses of all members of a firm or the names, addresses, and titles of every officer of a corporation as the case may be, must be given here by the member if the firm or by the officer or agent of the corporation who signs the Bid.

Respectfully submitted:

_____	_____
Signature	Company Name
_____	_____
Title	Address
_____	_____
Date	
_____	_____
License Number (if applicable)	Telephone No.

SEAL – (If BID is by a corporation)

If a Partnership, state names and addresses of Partners here:

_____	_____
_____	_____
_____	_____

WATER STREET FLOODING IMPROVEMENTS
BID NO.: 26-0013WW
CITY OF DOVER, DELAWARE

BID FORM

BIDDER agrees to perform the work described in the CONTRACT DOCUMENTS for the following prices:

PHASE I

BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	BID AMOUNT
01	MOBILIZATION/DEMOBILIZATION	1	LS		
02	MAINTENANCE OF TRAFFIC	1	LS		
03	EROSION AND SEDIMENT CONTROL	1	LS		
04	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	1	LS		
05	EXCAVATION AND EMBANKMENT	2826	CY		
06	SAW CUTTING BITUMINOUS CONCRETE	1842	LF		
07	ROTO MILLING	62628	SY-IN		
08	HOT C MIX	383	TON		
09	REINFORCED CONCRETE PIPE 24” CLASS III	921	LF		
10A	48” x 30” BOX MANHOLE (UP TO 9’ DEEP)	4	EACH		
10B	72” ROUND MANHOLE (UP TO 7’ DEEP)	1	EACH		
	CONTINGENCY ITEMS	QUANTITY	UNIT		
11	ADJUST CURB RAMPS TO MEET DELDOT SPECIFICATIONS	10	EACH		
				SUB TOTAL	

PHASE II

BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	BID AMOUNT
01	MOBILIZATION/DEMOBILIZATION	1	LS		
02	MAINTENANCE OF TRAFFIC	1	LS		
03	EROSION AND SEDIMENT CONTROL	1	LS		
04	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	1	LS		
05	EXCAVATION AND EMBANKMENT	6125	CY		
06	SAW CUTTING BITUMINOUS CONCRETE	3204	LF		
07	ROTO MILLING	99324	SY-IN		
08	HOT C MIX	600	TON		
09A	REINFORCED CONCRETE PIPE 24” CLASS III	377	LF		
09B	REINFORCED CONCRETE PIPE 36” CLASS III	600	LF		
9C	REINFORCED CONCRETE PIPE 48” CLASS III	315	LF		
9D	REINFORCED CONCRETE PIPE 60” CLASS III	310	LF		
10A	48” x 30” BOX MANHOLE (UP TO 8’ DEEP)	3	EACH		
10B	66”x 48” BOX MANHOLE (UP TO 8’ DEEP)	2	EACH		
10C	84” ROUND MANHOLE (UP TO 6’ DEEP)	1	EACH		
10D	48”x 48” BOX MANHOLE (UP TO 6’ DEEP)	2	EACH		
10E	76” CUSTOM MANHOLE (UP TO 10’ DEEP)	3	EACH		
	CONTINGENCY ITEMS	QUANTITY	UNIT		
11	ADJUST CURB RAMPS TO MEET DELDOT SPECIFICATIONS	6	EACH		
				SUB TOTAL	

PHASE III

BID ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	BID AMOUNT
01	MOBILIZATION/DEMOBILIZATION	1	LS		
02	MAINTENANCE OF TRAFFIC	1	LS		
03	EROSION AND SEDIMENT CONTROL	1	LS		
04	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	1	LS		
05	EXCAVATION AND EMBANKMENT	2156	CY		
06	SAW CUTTING BITUMINOUS CONCRETE	962	LF		
07	ROTO MILLING	32708	SY-IN		
08	HOT C MIX	200	TON		
09	REINFORCED CONCRETE PIPE 24" CLASS III	481	LF		
10	48" x 30" BOX MANHOLE (UP TO 8' DEEP)	4	EACH		
	CONTINGENCY ITEMS	QUANTITY	UNIT		
11	ADJUST CURB RAMPS TO MEET DELDOT SPECIFICATIONS	10	EACH		
				SUB TOTAL	

TOTAL AMOUNT FOR ALL PHASES BID NO.: 26-0013WW $_____

_____
Contractor's Name

_____
Signature Title Date

NOTE:

- **Contractor shall supply documentation to answer all requirements in the Statement of Qualification section, located in Section ITB.**
- **City May Decide to Award 1,2 Or 3 Phases.**

LOCAL VENDOR PREFERENCE

Circle One: Rule 1 Rule 2 Rule 3 None

MINORITY OWNED VENDOR PREFERENCE

Circle One: YES NO

END OF SECTION BF

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SECTION BB

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the Undersigned _____ as

Principal, and _____ as Surety, are

Hereby held and firmly bound unto the City of Dover, as OWNER, the penal sum

of _____

($_____) for the payment of which, well and truly to be made,

we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____2026.

The Condition of the above obligation is such that whereas the Principal has submitted to the City of Dover a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the Water Street Flooding Improvements Bid No.: 26-0013WW

NOW, THEREFORE,

A. If said BID shall be rejected, or

B. If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attachment hereto (properly completed in accordance with said BID) and shall furnish a BOND for faithful performance of said contract, and for the payment of all persons performing labor and furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the owner may accept such BID; and said Surety does hereby waive notice of any extension.

In WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above. Surety executing Bonds shall be a licensed agent in the State of Delaware.

_____ (L.S.)
Principal

_____
Surety

By: _____

IMPORTANT – Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

END OF SECTION BB

AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT is made as of the _____ day of _____ in the year 2026, between The City of Dover, a Delaware Municipal Corporation, whose address is 15 East Loockerman Plaza, Dover, Delaware 19901 (hereinafter referred to as the CITY), and _____ (COMPANY NAME), whose address is, _____ (hereinafter referred to as the CONTRACTOR).

NOW, THEREFORE, in consideration of the mutual benefits accruing to the parties to this Agreement, and for other good and valuable considerations, the parties agree as follows:

1. SERVICES

The CONTRACTOR shall perform the following services for **Water Street Flooding Improvements Project, Bid No.: 26-0013WW.**

Nothing herein shall limit the CITY's right to obtain proposals or services from other professionals for similar projects at any time the City so chooses.

2. INDEMNIFICATION

The Contractor, and any agent or subcontractor, shall defend, indemnify and hold harmless the City of Dover and its officials, officers, board members, council members, commissioners, representatives, employees, agents, and contractors, against any and all liability, costs, damages, fines, taxes, special charges by others, penalties, payments (including payments made under any Workers' Compensation Laws or under any plan for employees' disability and death benefits), and expenses (including reasonable attorney fees of the City of Dover and all other costs and expenses of litigation). Claims arising in any way, including any act, omission, failure, negligence, or willful misconduct, in connection with the work, construction, maintenance, repair, presence, use, or operation by Contractor, or Contractors officers, directors, employees, agents, and sub-contractors, shall be responsible for Claims. Such Claims include, but are not limited to, the following:

a. Intellectual property infringement, libel and slander, trespass, unauthorized use of television or radio broadcast programs and other program material, and infringement of patents;

b. Cost of work performed by City of Dover that was necessitated by Contractors failure, or the failure of Contractors officers, directors, employees, agents, or sub-contractors, to perform work, or maintain City of Dover facilities in accordance with the requirements and specifications of this Agreement, or from any other work authorized under this Agreement;

c. Damage to property, injury to or death of any person arising out of the performance or nonperformance of any work or obligation undertaken by Contractor, or Contractors officers, directors, employees, agents, and sub-contractors, pursuant to this Agreement;

3. PROCEDURE FOR INDEMNIFICATION

a. City of Dover shall give notice promptly to Contractor of any claim or threatened claim, specifying the factual basis for such claim and the amount of the claim. If the claim relates to an action, suit or proceeding filed by a third party against City of Dover, the notice shall be given to Contractor by City of Dover no later than ten (10) calendar days after written notice of the action, suit or proceeding was received by City of Dover.

b. Failure to timely give the required notice will not relieve the Contractor from its obligation to indemnify the City of Dover unless the City of Dover is materially prejudiced by such failure.

c. The City of Dover will have the right at any time, by notice to the Contractor, to participate in or assume control of the defense of the claim with counsel of its choice, which counsel must be reasonably acceptable to the Contractor. The Contractor agrees to cooperate fully with the City of Dover. If the City of Dover so assumes control of the defense of any third-party claim, the Contractor shall have the right to participate in the defense at its own expense. If the Contractor does not so assume control or otherwise participate in the defense of any third-party claim, it shall be bound by the results obtained by the City of Dover with respect to the claim.

d. If the City of Dover assumes the defense of a third-party claim as described above, then in no event will the City of Dover admit any liability with respect to, or settle, compromise or discharge, any third party claim without the Contractors prior written consent, and the Contractor will agree to any settlement, compromise or discharge of any third-party claim which the City of Dover may recommend which releases the City of Dover completely from such claim.

e. Municipal Liability Limits. No provision of this Agreement is intended, or shall be construed, to be a waiver for any purpose by either Utility of any applicable State limits on municipal liability.

f. Disclaimer. The City of Dover makes no express or implied warranties with regard to its structures, fixtures, materials, or other equipment, all of which are hereby disclaimed. The City of Dover makes no other express or implied warranties, except to the extent expressly set forth in this Agreement. The City of Dover expressly disclaims any implied warranties of merchantability or fitness for a particular purpose.

g. Duty to Competent Supervision and Performance. The Contractor shall ensure that its employees, servants, agents, and subcontractors have the necessary qualifications, skill, knowledge, training, and experience to protect themselves, their fellow employees, employees of the Utility, and the general public, from harm or injury while performing work permitted pursuant to this Agreement. In addition, the Contractor shall furnish its employees, servants, agents, and subcontractors with competent supervision and sufficient and adequate tools and equipment for their work to be performed in a safe manner.

h. Duty to Inform. The Contractor further warrants that it understands the imminent dangers (INCLUDING SERIOUS BODILY INJURY OR DEATH FROM FALLING) inherent in the work necessary to perform the work expected under this agreement by Contractors employees, servants, agents, contractors or subcontractors, and accepts as its duty and sole responsibility to notify and inform Contractors employees, servants, agents, contractors or subcontractors of such dangers, and to keep them informed regarding same.

4. INSURANCE

Policies Required. Prior to the commencement of any work and until completion and final payment is made for the work / final acceptance of the work for the Project Bid No. **26-0013WW**, the Contractor will provide and maintain the following minimum levels of insurance at Contractor's own expense. The cost of the required insurance shall be included in the Contractor's bid price and no adjustment shall be made to the contract price on account of such costs unless such approval is provided. The term Contractor shall include Subcontractors and Sub-Subcontractors of every tier. Contractor shall furnish Certificates of Insurance evidencing and reflecting the effective date of coverage as outlined below. In no event shall Work be performed until the required evidence of Insurance is provided in accordance with these Contract Documents and is approved by the City of Dover. If found to be non-compliant, the City of Dover may purchase the required insurance coverage(s) and the cost will be borne by the Contractor through direct payment/reimbursement to the City of Dover or the City of Dover may withhold payment to the Contractor for amounts owed to them.

a. All insurance shall be procured from insurers permitted to do business in the State in which the project is taking place and having an A.M. Best Rating of at least "A-, Class VIII".

b. Contractor shall not have a Self Insured Retention (SIR) on any policy greater than $50,000, which is the responsibility of the Contractor. If Contractor's policy(ies) has a Self Insured Retention exceeding this amount, approval must be received from the City of Dover prior to starting work. In the event any policy includes an SIR, the Contractor is solely responsible for payment within the SIR of their policy(ies) and the Additional Insured requirements specified herein shall be provided within the SIR amount(s).

c. All insurance required herein, with the exception of the Professional Liability Insurance, shall be written on an "occurrence" basis. Claims-Made coverage must include:

   i. The retroactive date must be on or prior to the start of work under this contract; and
   ii. The Contractor must purchase "tail coverage/an extended reporting period" or maintain coverage for a period of three years, subsequent to the completion of their work / final payment.

d. The Contractor's insurance carrier (s) shall agree to provide at least thirty (30) days prior written notice to the City of Dover in the event coverage is canceled or non-renewed. In the event of cancellation or non-renewal of coverage(s), it is the Contractor's responsibility to replace coverage to comply with the Contract requirements so there is no lapse of coverage for any time period.

   In the event the insurance carriers will not issue or endorse their policy(s) to comply with the above it is the responsibility of the Contractor to report any notice of cancellation or non-renewal at least thirty (30) days prior to the effective date of this notice.

e. Contractor shall provide the City of Dover with Certificates of Insurance, evidencing the insurance coverages listed below, ten days prior to the start of work and thereafter upon renewal or replacement of each coverage. The Contractor shall not begin any work until the City of Dover has reviewed and approved the Certificate of Insurance. The required insurance shall not contain any exclusions or endorsements, which are not acceptable to the City of Dover.

Failure of the City of Dover to demand such certificate or other evidence of full compliance with these insurance requirements or failure of the City of Dover to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

With respect to insurance maintained after final payment in compliance with a requirement below, an additional certificate(s) evidencing such coverage shall be provided to the City of Dover with final application for payment and thereafter upon renewal or replacement of such insurance until the expiration of the time period for which such insurance must be maintained.

f. Owner/Client and the City of Dover, (including the City of Dover's Parent, Subsidiaries, and Affiliates) shall be added as ADDITIONAL INSUREDS on all liability policies (except Workers' Compensation and Professional Liability Policy, where applicable), for ongoing operations and completed operations (using ISO Endorsements CG 2010 and CG 2037, or their equivalents) on a primary noncontributory basis. Coverage to include ongoing and completed operations. Each of the Additional Insured's respective directors, officers, partners, members, employees, agents and representatives shall also be afforded coverage as an Additional Insured. Coverage should be provided for a period of three years subsequent to the completion of work/final payment.

If you are operating in a state that has implemented the "Anti-Indemnity" Additional Insured Endorsements, you are required to provide the state specific additional insured endorsements for ongoing and completed operations. These states include but are not limited to: Montana, New Mexico, Oregon, Colorado, Kansas, California, Louisiana, and Texas.

The City of Dover reserves the right to require Contractor to name other parties as additional insureds as required by the City of Dover.

There shall be no "Insured versus Insured Exclusion" on any policies (other than "Named Insured versus Named Insured"); all policies will provide for "cross liability coverage" as per standard ISO policy forms.

g. Waiver of Rights of Subrogation: Contractor shall waive all rights of recovery against Owner/Client, the City of Dover and all the additional insureds for loss or damage covered by any of the insurance maintained by the Contractor.

h. The amount of insurance provided in the required insurance coverages, shall not be construed to be a limitation of the liability on the part of the Contractor.

i. The carrying of insurance described shall in no way be interpreted as relieving the Contractor of any responsibility or liability under the contract.

j. Any type of insurance or any increase in limits of liability not described above which the Contractor requires for its own protection or on account of statute shall be its own expense.

k. Contractor shall promptly notify the City of Dover and the appropriate insurance company(ies) in writing of any accident(s) as well as any claim, suit or process received by the Contractor arising in the course of operations under the contract. The Contractor shall forward such documents received to his insurance company(ies), as soon as practicable, or as required by their insurance policy(ies).

REQUIRED COVERAGES - the following may be provided through a combination of primary and excess policies in order to meet the minimum limits set forth below:

1. Worker's Compensation and Employers' Liability Insurance. Statutory worker's compensation benefits and employers' liability insurance with a limit of liability no less than that required by Delaware law at the time of the application of this provision for each accident. This policy shall be endorsed to include a waiver of subrogation in favor of the City of Dover. The Contractor shall require subcontractors and others not protected under its insurance to obtain and maintain insurance that includes:

    a. Workers' Compensation Coverage: Statutory Requirements

    b. Employers Liability Limits not less than:

Bodily Injury by Accident:	$100,000 Each Accident
Bodily Injury by Disease:	$100,000 Each Employee
Bodily Injury by Disease:	$500,000 Policy Limit

    c. USL&H, Maritime Liability, FELA, and DBA Coverage, if applicable.

    d. Includes coverage for sole proprietors, partners, members or officers who will be performing the work.

    e. Where applicable, if the Contractor is lending or leasing its employees to the City of Dover for the work under this contract (e.g. crane rental with operator), it is the Contractor's responsibility to provide the Workers Compensation and Employer's Liability coverage and to have their policy endorsed with the proper Alternate Employer Endorsement in favor the City of Dover.

2. Commercial General Liability Insurance. Policy will be written to provide coverage for, but not limited to, the following: premises and operations, products and completed operations, personal injury, blanket contractual coverage, broad form property damage, independent contractor's coverage with Limits of liability not less than the following:

    a. Occurrence Form with the following limits:

i.	General Aggregate:	$2,000,000
ii.	Products/Completed Operations Aggregate:	$2,000,000
iii.	Each Occurrence:	$1,000,000
iv.	Personal and Advertising Injury:	$1,000,000

b. Products/Completed Operations Coverage must be maintained for a period of at least three (3) years after final payment / completion of work (including coverage for the Additional Insureds as set forth in these Insurance Requirements).

c. The General Aggregate Limit must apply on a **Per Project basis**.

d. No Exclusions for residential construction with respect to the work to be completed by the Contractor.

e. Coverage for "Resulting Damage".

f. No sexual abuse or molestation exclusion.

g. No amendment to the definition of an "Insured Contract".

h. The definition of an "Insured Contract" must be amended to provide coverage for all work on or within 50 feet of a railroad, if applicable. A stand alone Railroad Protective Liability policy may be required based on the scope of this project.

3. Automobile Liability Insurance.

a. Coverage to include All Owned, Hired and Non-Owned Vehicles (or "Any Auto"), if you do not have any Owned Vehicles you are still required to maintain coverage for Hired and Non-Owned Vehicles as either a stand alone policy or endorsed onto the Commercial General Liability policy above

b. Per Accident Combined Single Limit $1,000,000

c. For Contractor(s) involved in the transportation of hazardous material, include the following endorsements: MCS-90 and ISO-9948.

4. Commercial Umbrella Liability:

a. Policy(ies) to apply on a Following Form Basis of the following:
   i. Commercial General Liability,
   ii. Automobile Liability, and
   iii. Employers Liability Coverage.

b. Minimum Limits of Liability
   Occurrence Limit: $5,000,000

c. Aggregate Limit (where applicable): $5,000,000

5. Rigger's Liability Insurance:
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

a. "All Risk" Replacement Cost Coverage

b. No overload exclusion

c. Minimum Occurrence Limit: $1,000,000

6. Pollution Liability Insurance:
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

    a. Covering losses caused by pollution incidents that arise from the operations of the Contractor and /or their subcontractors of any tier.

    b. Minimum Limits of Liability:
    Occurrence Limit: $2,000,000
    Aggregate Limit: $2,000,000

    c. Insurance to be maintained for the duration of the work and for a period of three (3) years after completion of work / final payment.

    d. No Exclusions for Silica, Asbestos or Lead.

    e. Include Mold Coverage for full policy limit of liability.

    f. Shall include coverage for all pollutants as defined under the Resource Conservation and Recovery Act, as amended, 42 U.S.C. Section 6901 et. Seq. ("RCRA") or any related state or city environmental statute or the removal of any petroleum contaminated material at the project.

    g. All owned and / or 3rd Party disposal facilities must be licensed and maintain pollution liability insurance of not less than $2,000,000, if applicable.

7. Aircraft Liability and/or Unmanned Aircraft Systems (UAS, aka Drones):
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

    a. Provide coverage for bodily injury, property damage, personal and advertising injury arising out of any owned, leased, hired, or borrowed aircraft or UAS; and

    b. Minimum Limits of Liability
    Per Occurrence Limit: $5,000,000
    Aggregate Limit: $5,000,000

    NOTE: If UAS are covered by the General Liability policy instead of an Aviation Policy, coverage must be provided by CG 24 50 (or its equivalent) for "any aircraft used in the Insured's operations" for "any operations or projects of the Insured".

8. Crime Insurance:
(IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

    a. Provide coverage for bodily injury, property damage, personal and advertising injury arising out of any owned, leased, hired, or borrowed aircraft or UAS; and

    b. Minimum Limits of Liability
    Per Occurrence Limit: $5,000,000
    Aggregate Limit: $5,000,000

9. Owner's Contractor's Protective:
   (IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

   a. The Contractor shall obtain an Owner's and Contractor's Protective in the same limits as set forth in #2, Commercial General Liability, above. This policy shall be issued in the name of the Owner.

   b. If you are providing ongoing and completed operations Additional Insured coverage for one of the following states, noted in "f" above (Montana, New Mexico, Oregon, Colorado, Kansas, California, Louisiana, and Texas) you are required to provide an Owner's Contractor's Protective as outlined in the preceding paragraph.

10. Owned, Leased, Rented or Borrowed Equipment:
    (IF DESIGNATED BY **CONTRACTOR'S** SCOPE OF WORK)

    Contractor shall maintain Property Coverage for:

    a. their owned, leased, rented or borrowed equipment, tools, trailers, etc.; and

    b. include a Waiver of Subrogation in favor of all Additional Insureds.

11. Installation Floater:
    (If designated by **CONTRACTOR'S** scope of work).

    a. Contractor shall provide coverage for damage to property in the course of installation or transit to the installation site.

    b. Coverage shall be equal to the full replacement cost of the equipment or materials being installed. Coverage shall also be provided for any ensuing loss of Business or Rental Income.

    c. Contractor must determine if the Installation Floater policy, if in place for this project, is adequate to protect the interests of Owner.

    d. Include a Waiver of Subrogation in favor of all Additional Insureds.

12. Qualification; Priority; Contractors' Coverage. The insurer must be authorized to do business under the laws of the State of Delaware. Such insurance will be primary. All contractors and all of their subcontractors who perform work on behalf of Contractor shall be responsible for carrying, in full force and effect, worker's compensation and employer's liability, and automobile liability insurance coverage.

13. Certificate of Insurance; Other Requirements. At the execution of this Agreement and prior to each insurance policy expiration date during the term of this Agreement, Contractor will furnish the City of Dover with a Certificate of Insurance with the CITY named as an additional insured. The Certificate shall reference this Agreement and worker's compensation and property insurance waivers of subrogation required by this Agreement. The City of Dover shall be given thirty (30) calendar days advance notice of cancellation or nonrenewal of insurance during the term of this Agreement.

14. Limits. The limits of liability set out in this Agreement may be increased by mutual consent of the parties, which consent will not be unreasonably withheld by either party, in the event of any factors or occurrences, including substantial increases in the level of jury verdicts or judgments or the passage of state, federal or other governmental compensation plans, or laws which would materially increase the City of Dover's exposure to risk.

15. Deductible/Self-insurance Retention Amounts. Contractor shall be fully responsible for any deductible or self-insured retention amounts contained in its insurance program or for any deficiencies in the amounts of insurance maintained.

5. CODES, LAWS, AND REGULATIONS

The CONTRACTOR will comply with all applicable codes, laws, regulations, standards, and ordinances in force during the term of this Agreement.

6. PERMITS, LICENSES, AND FEES

The CONTRACTOR will obtain and pay for all permits and licenses required by law that are associated with the CONTRACTOR performance of the Scope of Services.

7. ACCESS TO RECORDS

The CONTRACTOR will maintain accounting records, in accordance with generally accepted accounting principles and practices, to substantiate all invoiced amounts. Said records will be available for examination by the CITY during the CONTRACTOR's normal business hours. Said records will be maintained for a period of three (3) years after the date of the invoice.

8. CONTINGENT FEES PROHIBITED

The CONTRACTOR warrants that he or she has not employed or retained any company or person, other than a bona fide employee working solely for the CONTRACTOR, to solicit or secure this Agreement and that he or she has not paid or agreed to pay any person, company, corporation, individual, or firm, other than a bona fide employee working solely for the CONTRACTOR any fee, commission, percentage, gift, or other consideration contingent upon or resulting from the award or making of this Agreement. In the event of a breach of this provision, the CITY shall have the right to terminate this Agreement without further liability and at its discretion, deduct from the contract price, or otherwise recover, the full amount of any such fee, commission, percentage, gift or consideration paid in breach of this Agreement.

9. PAYMENT

It is understood and agreed by and between the parties hereto that this Contract is in the amount of _____and _____ Dollars [$_____.___] as per the Bid submitted by the Contractor on _____, 2026, and accepted by the City. The Contractor shall submit an invoice on or about the 15th of each month in which the Contract is in effect for the work completed and verified to date. The City shall pay the Contractor's invoice,

less 10% retainage, within thirty (30) days of receipt. The application for payment shall include a description and verification of work completed by the Contractor. All requests for payment shall be submitted on the AIA Document G702 (Application Certificate for Payment) and be accompanied by supporting documentation which will include the percent complete on the bid items identified in the Bid Form. Dates of testing and start-up should be provided to the City as required supporting documentation. Any reimbursement for expenses shall include receipts or copies of the invoices. No other costs or services shall be billed to the CITY.

10. INDEPENDENT CONTRACTOR

The CONTRACTOR is an independent contractor and as such will be responsible for paying his own Federal income tax and self-employment tax, or any other taxes applicable to the compensation paid under this agreement.

11. ASSIGNMENT

Neither party shall have the power to assign any of the duties or rights or any claim arising out of or related to the Agreement, whether arising in tort, contract, or otherwise, without the written consent of the other party. These conditions and the entire Agreement are binding on the heirs, successors, and assigns of the parties hereto.

12. NO THIRD PARTY BENEFICIARIES

This Agreement gives no rights or benefits to anyone other than the CONTRACTOR and the CITY.

13. JURISDICTION

The laws of the State of Delaware shall govern the validity of this Agreement, its interpretation and performance, and any other claims related to it. In the event of any litigation arising under or construing this Agreement, venue shall lie only in Kent County, Delaware.

14. TERM AND TERMINATION

All services to be rendered by the CONTRACTOR within the Scope of Work within the Invitation to Bidders section of the **Invitation to Bid** shall be completed within three hundred sixty (360) calendar days from the date of the Notice to Proceed. All or part of this Agreement may be terminated by the CITY for its convenience on thirty (30) days written notice to the CONTACTOR. In such event, the CONTRACTOR will be entitled to compensation for services competently performed up to the date of termination. In the event of termination not the fault of the CONTRACTOR, the CONTRACTOR shall be compensated for with Reimbursable Expenses then due and all Termination Expenses.

15. CONTACT PERSON

The primary contact person under this Agreement for the CONTRACTOR shall be

Name:_____, Phone No.: _____,

Address:_____.

The primary contact person under this Agreement for the CITY shall be Paul Thompson, Construction Manager, P.O. Box 475, Dover Delaware, 19903. P: 302-736-7029, Department of Water & Wastewater.

16. APPROVAL OF SERVICE PERSONNEL

The CITY reserves the right to approve the contact person and the persons actually performing the services on behalf of the CONTRACTOR pursuant to this Agreement. If the CITY, in its sole discretion, is dissatisfied with the contact person or the person or persons actually performing the services on behalf of the CONTRACTOR pursuant to this Agreement, the CITY may require the CONTRACTOR assign a different person or persons be designated to be the contact person or to perform the services hereunder.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the respective dates under each signature.

(CONTRACTOR)	CITY OF DOVER
By: _____	By: _____
Title: _____	Title: _____
Signature: _____	Signature: _____
Date: _____	Date: _____

END OF SECTION A

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SECTION NOA

NOTICE OF AWARD

TO: _____

_____

_____

PROJECT Description: **Water Street Flooding Improvements, Project Bid No.: 26-0013WW.**

The OWNER has considered the BID submitted by you for the above described WORK in response to its Invitation to Bidders and Information for Bidders.

You are hereby notified that your base BID has been accepted for the amount of:

_____

($ _____).

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance BOND, and certificates of insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.
You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____ 2026.

The City of Dover, Owner

Signature:_____

Printed:_____

Title:_____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

Firm Name:_____

this _____ day of _____, 2026

Signature:_____ Printed:_____

Title:_____

END OF SECTION NOA

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SECTION NTP

NOTICE TO PROCEED

TO: _____ Date: _____

_____ Project: Water Street Flooding Improvements

Bid No.: 26-0013WW

You are hereby notified to commence WORK in accordance with the Agreement dated, _____2026 on or before _____, 2026 and you are to complete each Phase within 120 consecutive calendar days thereafter. The date of completion of all work is therefore anticipated by _____, 2026.

The City of Dover
Owner

By:_____

Title:_____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged

by_____

this the _____ day of _____, 2026

By:_____Title:_____

Employer Identification Number: _____

END OF SECTION NTP

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SECTION PERB

PERFORMANCE BOND

KNOWN ALL PERSONS BY THESE PRESENTS: That

_____

(Name of Contractor)

_____

(Address of Contractor)

a _____hereinafter

(Corporation, Partnership or Individual)

called Principal, and _____

(Name of Surety)

_____

(Address of Surety)

hereinafter call Surety, are held and firmly bound unto the City of Dover, 15 E Loockerman Plaza, Dover, Delaware 19901 hereinafter called OWNER, in the total aggregate penal sum of _____

_____

($_____) in lawful money of the United States, for the payment of which sum well and truly to be make, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of_____, 2026, a copy of which is hereto attached and made a part hereof for the construction of:

Water Street Flooding Improvements, Bid No.: 26-0013WW.

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the SURETY and during the one year guaranty period and if the PRINCIPAL shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said SURETY, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder of the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of

time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that it is expressly agreed that the BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more that 20 percent, so as to bind the PRINCIPAL and SURETY to the full and faithful performance of the CONTRACT as so amended. The term "Amendment", wherever used in this BOND, and whether referring to this BOND, the Contract or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OWNER and the PRINCIPAL shall abridge the right of the other beneficiary hereunder, whose claim may be unsatisfied. The OWNER is the only beneficiary hereunder.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2026.

ATTEST:

(SEAL)

_____	_____
Secretary	Principal
_____	BY: _____ (s)
Witness as to Principal	
_____	_____
Address	Address
_____	_____
_____	_____

ATTEST:

(SEAL)

_____	_____
Secretary	Surety
_____	BY: _____ (s)
Witness as to Surety	Attorney-in-Fact
_____	_____
Address	Address
_____	_____
_____	_____

NOTES:

Date of BOND must not be prior to date of Contract.

IF CONTRACTOR is partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

END OF SECTION PERB

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SECTION MAB

MAINTENANCE BOND

KNOWN ALL PERSONS BY THESE PRESENTS: THAT

_____

(Name of Contractor)

_____

(Address of Contractor)

a _____hereinafter called

(Corporation, Partnership or Individual)

Principal, and _____

(Name of Surety)

_____

(Address of Surety)

hereinafter call Surety, are held and firmly bound unto the City of Dover, 15 Loockerman Plaza, Dover, Delaware 19901 hereinafter called OWNER, in the total aggregate penal sum of:

_____ Dollars,

($_____) in lawful money of the United States, for the payment of which sum, well and truly to be make, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that,

WHEREAS: The Principal entered into a certain contract with the OWNER, dated the _____ day of_____, 2026 and

WHEREAS: the Contract provides for the construction of:_____

_____

_____

_____

which Contract is by reference incorporated herein, and made a part hereof, and is referred to as the Contract.

WHEREAS: said Contract provides that the Principal shall furnish a maintenance bond, and

WHEREAS: said Contract has been substantially completed, and a Certificate of Substantial Completion was issued on_____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall remedy any defects due to faulty materials or workmanship, and pay for any damages to other work resulting therefrom, which shall appear within a period of _____

year(s) from the date of the Certificate of Substantial Completion as stated herein, then this obligation to be void; otherwise to remain in full force and effect.

PROVIDED, HOWEVER, that the OWNER shall five Principal and Surety notice of defects with reasonable promptness.

SIGNED and sealed this the _____ day of _____, 2026.

ATTEST:

(SEAL)

_____	_____
Secretary	Principal
_____	BY: _____ (s)
Witness as to Principal	
_____	_____
Address	Address
_____	_____
_____	_____

ATTEST:

(SEAL)

_____	_____
Secretary	Surety
_____	BY: _____ (s)
Witness as to Surety	Attorney-in-Fact
_____	_____
Address	Address
_____	_____
_____	_____

NOTES:

Date of BOND must not be prior to date of Contract.

IF CONTRACTOR is partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

END OF SECTION MAB

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SECTION 01 00 00

GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 SITE LOCATION

A. Project location is in the City of Dover, Kent County, Delaware as shown on cover sheet of plans

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. Without intending to limit or restrict the extent of Work required under Contract, the Work is generally divided into : Phase I: 921 linear feet of 24-inch (24") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 9' Deep), 72" Round Manhole (Up To 7' Deep), and adjust Curb Ramps (10 each) to meet DELDOT Specifications, Phase II: 377 linear feet of 24-inch (24") reinforced concrete pipe class III, 600 linear feet of 36-inch (36") reinforced concrete pipe class III, 315 linear feet of 48-inch (48") reinforced concrete pipe class III, 310 linear feet of 60-inch (60") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 8' Deep), 66"X 48" Box Manhole (Up To 8' Deep), 84" Round Manhole (Up To 6' Deep), 48"X 48" Box Manhole (Up To 6' Deep), 76" Custom Manhole (Up To 10' Deep), and adjust Curb Ramps (6 each) to meet DELDOT Specifications and Phase III: 481 linear feet of 24-inch (24") reinforced concrete pipe class III, 48" X 30" Box Manhole (Up To 4' Deep) and adjust Curb Ramps (6 each) to meet DELDOT Specifications. Properly disposing of existing reinforced concrete pipe, and Installation of Manholes as per the Plans provided. Repavement of entire width of the Road as per DEDLOT specifications.

B. The Project Drawings are generally indicative of the Work; however, they cannot show all actual construction conditions. Modifications in the work to compensate for minor interferences and structural obstructions shall be as part of the Work at no additional cost to the Owner

1.03 CONTRACT TIME

A. The Bid Form states the number of consecutive work days allowed from date of "Notice to Proceed" to date of completion of the entire project under this Contract. For each and every day that the Contractor is in default in completing the Contract, as defined in the General Conditions and the bid, he shall pay the Owner the sum of $500.00 in liquidated damages.

B. The Owner reserves the right to take either or both of the following actions at any time, that in his judgment, it appears the scheduled completion date will not be met:

1. Require the Contractor to assign additional construction forces to the work.
2. Delete all or any portion of remaining work from this Contract and assign such work to another Contractor or accomplish same by any other method which may appear most advantageous.
3. These remedies are supplementary to all other provisions of the specifications and do not void such other provisions.

1.04 SAFETY

A. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property affected directly or indirectly by his operations during the performance of the work. The requirement will apply continuously 24 hours per day until acceptance of the Work by the Owner and shall not be limited to normal working hours.

B. All safety laws, rules, ordinances or regulations adopted or that may be enacted hereinafter by State, Federal or Local Authority shall govern all construction and operation of facilities under these Contract Documents. Each and every provision of law, rule, ordinance, regulation or clause required by law as related to safety to be inserted in these specifications or contract shall be deemed to be inserted herein and the Specifications or Contracts shall be read and enforced as though it were included herein.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 00 00

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Scope of Work

B. Contractor's Use of Site and Premises

C. Design Intent

D. Surveying and Lay-out of Work

E. Quality Control/Assurance

F. Warranties and Bonds

1.02 SCOPE OF WORK

A. The Drawings and Specifications present the technical requirements for this project. Major components of the Work generally include:

Phase I:

1. Mobilization/Demobilization
2. Maintenance Of Traffic
3. Erosion And Sediment Control
4. Removal Of Structures And Obstructions
5. Excavation And Embankment
6. Saw Cutting Bituminous Concrete
7. Roto Milling
8. Hot C Mix
9. 921 Linear Feet Reinforced Concrete Pipe 24" Class III

10A. 48" x 30" Box Manhole (Up To 20' Deep)

10B. 72" Round Manhole (Up To 12' Deep)

11. Adjust Curb Ramps To Meet DELDOT Specifications

Phase II:

1. Mobilization/Demobilization
2. Maintenance Of Traffic
3. Erosion And Sediment Control
4. Removal Of Structures And Obstructions
5. Excavation And Embankment
6. Saw Cutting Bituminous Concrete
7. Roto Milling
8. Hot C Mix

9A. 377 Linear Feet Reinforced Concrete Pipe 24" Class III

9B. 600 Linear Feet Reinforced Concrete Pipe 36" Class III

9C. 315 Linear Feet Reinforced Concrete Pipe 48" Class III

9D. 310 Linear Feet Reinforced Concrete Pipe 60" Class III

10A. 48” X 30” Box Manhole (Up To 16’ Deep)
10B. 66”x 48” Box Manhole (Up To 12’ Deep)
10C. 84” Round Manhole (Up To 10’ Deep)
10D. 48”x 48” Box Manhole (Up To 18’ Deep)
10E. 76” Custom Manhole (Up To 10’ Deep)
11. Adjust Curb Ramps To Meet DELDOT Specifications

Phase III:
1. Mobilization/Demobilization
2. Maintenance Of Traffic
3. Erosion And Sediment Control
4. Removal Of Structures And Obstructions
5. Excavation And Embankment
6. Saw Cutting Bituminous Concrete
7. Roto Milling
8. Hot C Mix
9. 481 Linear Feet Reinforced Concrete Pipe 24” Class III
10. 48” x 30” Box Manhole (Up To 22’ Deep)
11. Adjust Curb Ramps To Meet DELDOT Specifications

B. The Contractor shall provide the necessary supervision, labor, materials, equipment, tools, quality control, and appurtenances as required to complete the Work, acceptable to the permitting authorities, the Owner and the Engineer, and in compliance with applicable codes and regulations. Work under these Contract Documents includes the following list of tasks, which provides a general description of the scope of work:

1. Obtain all necessary permits.
2. Mobilize materials, crew and equipment.
3. Establish the necessary survey controls and specified limits of Work.
4. Provide professional utility location services to physically locate and provide mark-out for all underground utilities within the proposed excavation areas of the project.
5. Provide the necessary traffic controls in accordance with the latest edition of the Delaware Manual on Uniform Traffic Control Devices and safety controls to maintain safe conditions and comply with OSHA.
6. Obtain access to any and all utilities necessary for construction, including but not limited to the following: electric power, telephone service, sanitary service, gas service and water service.
7. Provide temporary soil erosion and sediment control measures and stormwater management during construction. The Work shall include the removal of all erosion and sediment controls after final site stabilization measures are functional.
8. Load, transport, manage, consolidate, and re-use suitable, excavated on-site soils/aggregate indicated by the Drawings and Specifications, or otherwise directed by the Owner or the Engineer.
9. Load, transport and manage unsuitable or excess, excavated on-site soils, materials, waste and debris to an offsite permitted disposal area.

10. Provide survey control of all excavation work (using a licensed land surveyor registered in the State of Delaware) to maintain design grades.
11. Dewater pipe trenches if needed.
12. Implement quality control measures and complete quality control testing as outlined in these Specifications.
13. Provide 'as-built' drawings, prepared by a licensed surveyor or professional engineer registered in the State of Delaware, that document the final limits, elevations and alignments of the completed work, as described in these Specifications. In addition, provide one clean set of hand-marked ('red-line') Drawings showing all changes to the original drawing information and 'as-built' conditions suitable for use by the Engineer to prepare final Record Drawings.
14. Clean the work area and demobilize all remaining materials, crew, and equipment.
15. Provide measures to keep streets and the Site property clean at all times.
16. All trenches must be backfilled the same day or covered with steel plating. No trenches shall be left open overnight.

1.03 CONTRACTOR'S USE OF SITE AND PREMISES

A. Prior to performing any Work at the Site, the Contractor is responsible for notifying all local utilities and confirming, via mark-out, the plan locations of all reported public and private underground and overhead utilities and structures. The Contractor shall notify the Engineer of the locations of all utilities and structures in the area where construction activities will be occurring.

B. The Contractor shall take all measures necessary to minimize disruptions or interferences to the Owner's operations at the Site.

C. Construction operations shall be confined to the limits of Work indicated on the Drawings and designated by the Engineer, except that equipment/materials laydown/storage and long-term soil stockpiling outside the limits of Work may be allowed as approved by the Owner.

1.04 DESIGN INTENT

A. The Work shall be completed in a manner that accomplishes the following key objectives:
   1. Minimizes the quantities of excavated soils and dewatering fluids generated during the Work;
   2. Maintain proper drainage.
   3. Provide a completed project. Any work or materials required to provide a completed project but not specifically referenced shall be considered incidental to the work.

1.05 SURVEYING AND LAY-OUT OF WORK

A. The Drawings are diagrammatic in nature. Shown alignments and required sizes and terminations of components are intended to conform to the Site constraints, avoid creating obstructions, and preserve clearances. However, it is not the intention of these documents to indicate all required dimensions and offsets.

B. The Contractor shall provide for offsets, horizontal and vertical control points and other surveying requirements in such a manner as to conform to the Site features, and make all Work requiring inspection and possible future maintenance and repair accessible.

1.06 QUALITY CONTROL/ASSURANCE

A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship to produce Work of the specified quality.

B. Comply fully with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with the Contract Documents, request clarification from the Engineer before proceeding.

D. Comply with specified standards as a minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform the Work by persons qualified to produce workmanship of the specified quality.

F. Perform quality control/quality assurance inspection and testing of the materials and construction.

1.07 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of Work. Except for items put into use with the Owner’s permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 11 00

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.01 GENERAL

A. Payment for the work completed under this Contract will be made at the lump sum and unit prices bid, which shall include the furnishing of all labor, tools, equipment and materials, and performance of all work required to complete the project as indicated and specified in accordance with all requirements of the Contract Documents and to the entire satisfaction of the Owner's Engineer.

B. All work, incidental and miscellaneous items, and materials for which no specific bid item is shown and which are necessary to complete the project in accordance with the contract documents and to maintain and/or repair the work are incidental to the bid items listed below and shall be done and furnished by the Contractor without extra charge.

C. The Contractor will be compensated monthly for only the materials in-place, complete, and will not be compensated for materials stored. In the case of lump sum items, monthly compensation will be on the basis of the schedule of values to be agreed upon prior to beginning construction.

D. All materials furnished and installed shall comply with all requirements set forth in the City of Dover's Water/Wastewater Handbook. All items not specified in the City of Dover's Water/Wastewater Handbook must be approved by the City of Dover Department of Water & Wastewater before installing.

1.02 AUTHORITY

A. The Contractor shall provide the services of a Delaware registered surveyor to take all measurements and compute quantities. The Engineer will verify measurements and quantities.

1.03 UNIT QUANTITIES SPECIFIED

A. Quantities and measurements indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer shall determine payment. The City of Dover is not liable to the Contractor for any additional compensation based on any variance between the estimated quantities and the actual quantities installed during the course of the Project. The Contractor shall be paid solely for the actual quantities of items installed at the bid price.

B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.

1.04 MEASUREMENT OF QUANTITIES

A. Lineal Foot

1. Measurement of linear feet to be paid under this section shall be the actual number of linear feet of material installed in accordance with these specifications, measured as described further in this section, complete, in place and accepted.

2. The cost of any connections of couplings shall be included in the price bid per linear foot for this item.

B. Square Yards

1. Measurement of square yards of material to be paid under this section shall be the actual number of square yards of material installed in accordance with these specifications, measured from end to end, complete, in place and accepted.

C. Cubic Yards

1. Measurement of cubic yards of material to be paid under this section shall be the actual volume of cubic yards of material installed in accordance with these specifications, measured from end to end, complete, in place and accepted.

2. The maximum payment width for pipe trenches shall be as shown on the drawings.

D. Each

1. The number of each item installed shall be measured on the actual number of each unit installed in accordance with the plans and specifications, complete, in place and accepted.

2. The cost of any incidentals shall be included in the price bid for this item.

E. Lump Sum

1. This item will not be measured.

1.05 PAYMENT

A. Payment includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation, services and incidentals, erection, application or installation of an item of the Work; overhead and profit.

B. Final payment for work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the engineer multiplied by the unit price for work which is incorporated in or made necessary by the work.

C. Linear Foot

1. The number of linear feet as determined above shall be paid for at the contract unit price per linear foot bid for this item.

D. Square Yards

1. The square yards of material as measured above shall be paid at the contract unit price bid for the item.

E. Cubic Yards

1. The cubic yards of material as measured above shall be paid at the contract unit price bid for the item.

F. Each

1. The number of each item as determined above shall be paid for at the contract unit price bid for the item.

G. Lump Sum

1. The contract lump sum price will be made under this item in proportion to the amount of work done as determined by the Engineer.

1.06 Bid Items

A. Bid Item 1- Mobilization/Demobilization

1. Measurement - This item will not be measured. The Lump Sum payment for this item will be full compensation for providing initial services and facilities required to mobilize for and commence the work of this project and for all activities associated with final equipment removal and site clean-up as shown, specified and required to provide a complete project.

2. Payment: The payment for mobilization/demobilization will be made at 50 % on the first payment requested with the remainder paid in even monthly increments spread out over the Contract Time. Costs to be included under this item shall include such items as bonds, insurance, shop drawings, submittals, temporary facilities and controls, permits, notifications, surveying, subsurface investigations, test pits, and photography, hydrostatic testing, along with other costs and incidentals associated with initiating and finishing the work.

B. Bid Item 2 – Maintenance Of Traffic

1. Measurement - This item will not be measured. The Lump Sum payment for this item will be full compensation for all items related to the control of traffic throughout the course of the project in accordance with the plans, the latest edition of the Delaware Manual on Uniform Traffic Control Devices (MUTCD) and any additional requirements as set forth by the Delaware Department of Transportation.

2. Payment – The contract lump sum price will be paid under this item in proportion to the amount of work completed as determined by the Engineer. The lump sum price bid shall include all of the Contractor's costs of whatsoever nature. The price bid shall include, but not limited to preparation of a detailed traffic and pedestrian control plan, proposed detour plans, notifications, coordination, furnishing, transporting and set up of all traffic control equipment, materials and labor to the various areas of construction as necessary to complete the work in accordance with the Plans and the latest edition of the Delaware Manual on Uniform Traffic Control Devices (MUTCD).

C. Bid Item 3 - Erosion and Sediment Control

1. Measurement – This item will not be measured. The lump sum payment for this item will be full compensation for all work related to the installation and maintenance of Erosion and Sediment Controls in accordance with the plans, specifications, Kent County Conservation District and DNREC Requirements.

2. Payment - The contract lump sum price will be paid under this item in proportion to the amount of work completed as determined by the Engineer and shall include, but not be limited to the furnishing of all materials, labor, installation and maintenance of all Erosion and Sediment Controls required

including inlet protection, silt fence, matting, temporary stabilization, etc. in accordance with the latest edition of the Delaware Erosion and Sediment Control Handbook and these plans.

D. Bid Item 4 – Removal Of Structures and Obstructions

1. Measurement – This item will not be measured. The lump sum payment for this item will be full compensation for all work related to the Removal Of Structures and Obstructions of the proposed work in accordance with the plans and specifications.

2. Payment - The contract lump sum price will be paid under this item in proportion to the amount of work done in accordance with the plans and specifications.

E. Bid Item 5 – Excavation And Embankment

1. Measurement - Measurement of cubic yard to be paid under this section shall be the actual number of cubic yard of excavation and embankment performed in accordance with the plans and specifications, measured along the centerline from end to end.

2. Payment - Payment will be based on cubic yards of excavation and embankment as measured in bid form shall be paid at the contract unit price bid.

F. Bid Item 6 – Saw Cutting Bituminous Concrete

1. Measurement - Measurement of linear feet to be paid under this section shall be the actual number of Saw Cut Bituminous Concrete in accordance with the plans and specifications.

2. Payment - Payment will be based on the linear feet for Saw Cutting Bituminous Concrete at the contract unit price bid for installation. The price bid to saw cut Bituminous Concrete shall include but not be limited to furnishing of all labor, equipment and materials necessary to complete the work including survey and layout, and all other items necessary to complete the work as specified and shown in the contract documents.

G. Bid Item 7 – Roto Milling

1. Measurement – Measurement will be based on the SY-IN for Milling installed in accordance with the plans and specifications, complete, in place and accepted.

2. Payment – Payment will be based on the SY-IN for Milling installed at the contract unit price bid for installation. The price bid to install the manhole shall include but not be limited to furnishing of all labor, equipment and materials necessary to complete the work including survey and layout, notifications, and all other items necessary to complete the work as specified and shown in the contract documents.

H. Bid Item 8 – Hot Mix C

1. Measurement – Measurement will be based on the Tons of Hot Mix C for repavement of road in accordance with the plans and specifications, complete, in place and accepted.

2. Payment – Payment will be based on Tons of Hot Mix C for repavement of road installed at the contract unit price bid for installation. The price bid to install the drainage inlet shall include but not be limited to furnishing of all labor, equipment and materials necessary to complete the work including survey and layout, notifications, excavation, furnish and installation and all other items necessary to complete the work as specified and shown in the contract documents.

I. Bid Item 9 – Reinforced Concrete Pipe

3. Measurement - Measurement of linear feet to be paid under this section shall be the actual number of linear feet of reinforced concrete pipe installed in accordance with the plans and specifications, measured along the centerline from end to end.

4. Payment - The number of linear feet as determined above shall be paid for at the contract unit price per linear foot bid for storm pipe installed per the requirements of the Contract Documents. The unit price bid for this item will be full compensation for providing all labor, material, equipment, tools and incidentals, necessary to furnish and install the new pipe in accordance with the plans and specifications, including but not limited to notification and coordination with property owners, test pits to locate utilities, removal and proper disposal of bituminous pavement, concrete, and unsuitable backfill, dewatering, shoring, transportation, furnish and placement of new pipe, bypass pumping, AASHTO #57 pipe bedding, backfill and/or Type C Borrow Selectfill and all other necessary items to complete the work. GABC, bituminous pavement, concrete work, and site restoration are incidental and will not be measured and paid separately.

J. Bid Item 10 – Box, Round and Custom Manhole Installation (Variable Sizes)

1. Measurement – Measurement will be based on the actual number of each manhole installed in accordance with the plans and specifications, complete, in place and accepted.

2. Payment – Payment will be based on the number of manholes installed at the contract unit price bid for installation. The price bid to install the manhole shall include but not be limited to furnishing of all labor, equipment and materials necessary to complete the work including survey and layout, notifications, bypass pumping, excavation, and restoration, Type C Borrow Backfill, AASHTO #57 pipe bedding, compaction, dewatering, and all other items necessary to complete the work as specified and shown in the contract documents.

K. Bid Item 11 – Adjust Curb Ramps to Meet DelDOT Specifications

1. Measurement – Adjust each Curb Ramps as per DELDOT Specifications which was mentioned in bid form shall be paid for at the contract unit price.

2. Payment – Payment will be based on each Curb Ramps adjusted as per DELDOT specifications.

PART 2 PRODUCTS

Not Required

PART 3 EXECUTION

Not Required

END OF SECTION 01 22 00

SECTION 01 31 19

PROJECT MEETINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Project meetings.

1.02 REFERENCES

A. Abbreviations and Acronyms

1. QC – Quality Control

1.03 SUBMITTALS

Not Used

1.04 PROJECT MEETINGS

A. Attend pre-construction meeting, periodic progress meetings, specially called meetings, and final acceptance inspection meeting as required by Section 01 77 00 Closeout Procedures.

B. Ensure representatives of Contractor, Subcontractors and Suppliers attending meetings are qualified and authorized to act on behalf of the entity each represents.

1.05 PRE-CONSTRUCTION MEETING

A. Attend the pre-construction meeting scheduled by the Contract Administrator. Do not commence Work prior to the meeting.

B. Attendees:

1. Required Contractor Participants
    a. Contract Administrator
    b. Owner
    c. Contractor’s Superintendent
    d. QC Supervisor
    e. Major Subcontractors
2. Optional Contractor Participants
    a. Major Suppliers
    b. Utility Representatives

C. Address Project orientation, personnel contact, safety issues, permits, Project coordination issues, schedule, deficiencies, and the location of the Contractor's site office.

1.06 PROGRESS MEETINGS

A. Attend monthly Progress Meetings scheduled by the Contract Administrator. In addition to the regularly scheduled meetings, the Contract Administrator may schedule additional meetings at their discretion, at the request of government agency representatives, or at the request of the Contractor. The Contractor may initiate a meeting by addressing a request to the Contract Administrator.

B. Progress meetings will be held at the Project Site or by conference call.

C. Attendees:

1. Required Contractor Participants
   a. Contractor's Superintendent
   b. QC Supervisor
2. Optional Contractor Participants
   a. Subcontractor representatives
   b. Suppliers appropriate to the agenda

D. Address:

1. Work progress since previous meeting
2. Projected progress during succeeding period
3. Field observations, problems, and conflicts
4. Problems that impede construction schedule and proposed corrective actions
5. Revisions to construction schedule
6. Off-site delivery schedules
7. Submittal schedules
8. Quality control
9. Proposed changes for effect on construction schedule and on completion date, and effect on other contracts of the Project
10. Review of requests for payment
11. Other business as appropriate

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 31 19

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULES

PART 1 GENERAL

1.01 GENERAL

A. Promptly after award of Contract, prepare and submit to the Owner's Engineer and Owner, an estimated construction progress schedule for the work, with subschedules of related activities which are essential to its progress.

B. Submit revised progress schedules monthly as construction progresses.

C. Prepare and submit schedule of Shop Drawing, Product Data and Sample submittals.

D. Prepare and submit schedule of values.

1.02 FORM OF SCHEDULES

A. Prepare construction progress schedule in form of a horizontal bar chart.

1. Provide separate horizontal bar for each design and construction trade or operation.
2. Horizontal time scale: Identify first work day of each week.
3. Scale and spacing: Allow space for notations and future revisions.

B. Shop Drawing, Product Data and Sample submittal schedule shall be in tabular form.

C. Schedule of values shall be in tabular form.

1.03 CONTENT OF SCHEDULES

A. Construction Progress Schedule:

1. Show complete sequence of construction by activity.
2. Show dates for beginning, and completion of, each major element of construction.
3. Include final close-out activities, such as startup of equipment and systems, instruction, inspections and corrections, final cleaning and record document deliveries.
4. All construction shall be included on one master schedule.

B. Shop Drawing, Product Data and Sample Submittal Schedule:

1. Show each required submittal identified by Specification section.
2. Show projected date for submission to Engineer.
3. Show dates for required completion of Engineer's review.
4. All submittals shall be included on one master schedule.

C. Schedule of Values:

1. Show quantities and prices for items of Work. Revise item list as requested by Engineer.
2. Subdivide the Work into component parts in sufficient detail to serve as basis for progress payments. Overhead and profit applicable to each item of Work shall be included in component parts.

1.04 CONSTRUCTION PROGRESS SCHEDULE REVISIONS

A. Indicate progress of each activity to date of submission.

B. Show changes occurring since previous submission of schedule.

1. Major changes in scope.
2. Activities modified since previous submission.
3. Revised projections of progress and completion.
4. Other identifiable changes.

C. Contractor shall update master construction progress schedule monthly.

1.05 SUBMISSIONS

A. Submit initial schedules within 10 days of Effective Date of Agreement.

1. Engineer will review schedules and return review copy within 10 days after receipt.
2. If required, resubmit within 7 days after return of review copy.
3. Contractor shall submit construction progress schedule and master Shop Drawing, Product Data and Sample submittal schedule to Engineer.
4. Contractor shall submit individual schedule of values.

B. Updates and Revision.

1. Contractor shall submit revised construction progress schedules monthly with each application for payment.
2. At each monthly submission, identify activities completed since the previous submission.
3. If applicable, revise the schedule to indicate:
   a. Revisions to nature or duration of activities.
   b. Anticipated changes to milestone dates, Substantial Completion dates, or other dates affecting schedules.
4. To minimize any need for resubmission, review significant proposed schedule changes with Engineer prior to submission.
5. With each monthly submission, submit a brief typewritten statement regarding reasons for revisions.
6. No Application for Payment from Contractor will be processed until Contractor has noted concurrence with updated construction progress schedule.

C. Quantities for Submission:

1. Initial schedules and subsequent revisions prior to approval: One reproducible copy for Engineer.
2. Approved schedules and monthly updates: Three copies of Schedule based on approved draft for Engineer.

END OF SECTION 01 32 16

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal procedures.

B. Proposed Products List.

C. Samples.

D. Manufacturers' certificates.

1.02 SUBMITTAL PROCEDURES

A. Cover all submittals with transmittal forms. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.

B. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.

C. Apply Contractor's "approved" stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, are in accordance with the requirements of the Work and Contract Documents.

D. Schedule submittals to expedite the Project, and deliver to Engineer. Coordinate submission of related items.

E. Identify variations from Contract Documents, Product or system limitations which may be detrimental to successful performance of the completed Work shall be identified also.

F. Provide space for Contractor and Engineer review stamps.

G. Revise and resubmit submittals as required, identify all changes made since previous submittal.

H. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

I. Review Time

1. Allow sufficient time so that Work will not be delayed as a result of time required to properly process submittals, including time for resubmittal if necessary. The Engineer shall attempt to return submittals within three weeks of receipt.

2. No extension of time will be authorized because of the Contractor’s failure to transmit submittals sufficiently in advance of the Work.

3. No extension of time will be authorized because of submittals which are not submitted in accordance with the Contract Documents or are not sufficiently complete for review.

J. Engineer's Review

1. Limited to two per required submittal item.
2. Relative to requirements of this paragraph, receipt by the Engineer of a submission from the Contractor constitutes a review.
3. Cost of Engineer review of submittal items not required (unless specifically arranged by Engineer in advance), costs of review of submittals for requests for substitution made after bidding (unless product becomes unavailable through no fault of the Contractor), and costs for third and subsequent reviews of required submittal items shall be paid by the Contractor and shall be withheld from Owner's payments to Contractor.

1.03 PROPOSED PRODUCTS LIST

A. Within 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 for each product.

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

1.04 SAMPLES

A. When determined as appropriate by the Engineer, submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

B. Submit samples of finishes, textures, and patterns for selection.

C. Include identification on each sample, with full Project Information.

D. Submit the number of samples specified in individual specification Sections.

E. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

1.05 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification Sections, submit manufacturers

certificate to Engineer for review, in quantities specified for Product Data.

B. Indicate if materials or Products conform to or exceed 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 Engineer.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

END OF SECTION 01 33 00

SECTION 01 45 00

QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Quality assurance and control of installation.

B. References.

C. Field samples.

D. Inspection and testing laboratory services.

E. Manufacturers' field services and reports.

1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship, to produce Work of specified quality.

B. Comply fully with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instruction conflict with Contract Documents, request clarification from Engineer before proceeding.

D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work using persons qualified to produce workmanship of specified quality.

F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

G. Requirements of Regulatory Agencies: The construction requirements of State, County or other political subdivision specifications exceeding the requirements of the codes, standards, and approving bodies referenced herein shall be met and complied with.

1.03 REFERENCES

A. Conform to reference standard by date of issue current on date for receiving bids or date of Owner-Contractor Agreement when there are no bids.

B. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any referenced document.

1.04 FIELD SAMPLES

A. Install field samples at the site as required by individual specification Sections for review.

B. Acceptable samples represent a quality level for the Work.

C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Engineer.

1.05 INSPECTION AND TESTING LABORATORY SERVICES

A. Contractor shall employ services of an independent firm approved by Owner to perform inspection and testing. Contractor shall pay for services of that firm.

B. The independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the Engineer.

C. Reports will be submitted by the independent firm to the Engineer indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

D. Contractor shall cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.

1. Contractor shall notify Engineer and independent firm 48 hours prior to expected time for operations requiring services.

2. Contractor shall make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.

E. Retesting required because of non-conformance to specified requirement shall be performed by the same independent firm on instructions by the Engineer. No additional charge to owner for retesting.

1.06 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. Submit qualifications of observer to Engineer 14 days in advance of required observations. Observer subject to approval of Engineer.

B. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment and return services as applicable, and to initiate instructions when necessary.

C. Representatives are to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

D. Submit report within 30 days of observation to Engineer for review.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

END OF SECTION 01 45 00

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities: Electricity, lighting, heat, telephone service, water, and sanitary facilities.

B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, water control, and dust control.

C. Construction Facilities: Access roads, parking, progress cleaning, noise control.

1.02 TEMPORARY ELECTRICITY (IF APPLICABLE)

A. Provide and pay for power service required from utility source.

B. Provide temporary electric feeder and electrical service.

C. Provide separate metering for cost of energy used.

1.03 TEMPORARY LIGHTING (IF APPLICABLE)

A. Provide and maintain lighting for construction operations.

1.04 TEMPORARY HEAT (IF APPLICABLE)

A. Provide heat devices and heat as required to maintain specified conditions for construction operations.

1.05 TELEPHONE SERVICE (IF APPLICABLE)

A. Provide, maintain and pay for telephone services as required.

1.06 TEMPORARY WATER SERVICE (IF APPLICABLE)

A. Provide, maintain and pay for suitable quality water service required for construction operations.

1.07 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures.

1.08 BARRIERS AND FENCING

A. Provide barriers or fencing to protect existing facilities and adjacent properties from damage due to Work operations.

B. Provide protection for plant life designated to remain. Replace damaged plant life.

C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.09 WATER CONTROL

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide measures to protect site from soil erosion.

1.10 DUST CONTROL

A. Provide all labor, equipment, machinery and other means to control dust emissions throughout the site for the duration of the project.

B. Contractor shall abate dust nuisance by cleaning, sprinkling with water or other means as necessary.

C. The use of water, in amounts which result in ponding, is not acceptable as a substitute for other methods.

1.11 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual Specification Sections.

B. Provide temporary and removable protection for installed Products. Control activity in immediate Work area to minimize damage.

1.12 ACCESS ROADS

A. Construct and maintain temporary roads accessing public thoroughfares to service Work area.

B. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide and maintain means of removing mud from vehicle wheels before entering streets.

E. Maintain the sidewalk accessible to pedestrians.

1.13 PARKING

A. Arrange for temporary parking areas to accommodate construction personnel.

B. When site space is not adequate, provide additional off-site parking approved by Owner and off-site landowner.

1.14 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition. Brush clean or wash roadway near construction entrance(s) regularly. Rock tire scrubbers that are part of E&S controls shall be cleaned by rock removal, and replaced regularly. The walkway at the construction entrance shall be brush cleaned once in two days at a minimum.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Remove waste materials, debris, and rubbish from site and dispose off-site at an acceptable location. Waste materials shall be removed weekly, at a minimum.

E. Maintain dust free all construction areas and adjacent sites.

1.15 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Final Application for Payment inspection.

B. Clean and repair damage caused by installation or use of temporary Work.

C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.16 NOISE CONTROL

A. Contractor shall be responsible for maintaining noise control measures which meet the requirements of local codes or regulations.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 50 00

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SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Contractor shall provide and maintain temporary and permanent erosion and sediment control measures for the duration of the construction project as shown on the drawings and as specified herein, including all areas disturbed by the Contractors.

1.02 REGULATORY REQUIREMENTS

A. All erosion and sediment control practices shall comply with the Delaware Erosion and Sediment Control Handbook.

1.03 PERMITS AND INSPECTIONS

A. The Contractor shall assure all permits and approvals have been obtained before the Work can begin. Erosion and Sediment Control permits will be provided by the Owner.

PART 2 PRODUCTS

2.01 MATERIALS

A. Seed - See Section 32 90 00 Planting.

B. Mulch - See Section 32 90 00 Planting.

C. Fertilizer - See Section 32 90 00 Planting.

D. Soil Conditioner - See Section 32 90 00 Planting.

E. Inlet Protection - in accordance with the Erosion and Sediment Control permit.

F. Silt Fence – in accordance with the Erosion and Sediment Control permit.

G. Stabilized Construction Entrance – in accordance with the Erosion and Sediment Control permit.

PART 3 EXECUTION

3.01 CONSTRUCTION METHODS

A. A pre-construction meeting shall be held prior to the start of the Work. At the pre-construction meeting, the contractor shall submit for acceptance of his schedules for temporary and permanent erosion control work.

B. No work shall be started until the erosion control schedules and methods of operations have been accepted by the Engineer.

C. The Contractor shall follow the Sequence of Construction notes and the Erosion and Sediment Control notes in the Contract Drawings.

D. All Work shall comply with the procedures and practices as set for in the Delaware Erosion and Sediment Control Handbook, December 2003 as revised.

3.02 OUTSIDE ASSISTANCE

A. In case of repeated failures on the part of the Contractor to control erosion, pollution or siltation, the Engineer reserves the right to employ outside assistance or to use his own forces to provide the necessary corrective measures. Such incurred direct costs plus project engineering costs will be charged to the Contractor and appropriate deductions will be made from the Contractor's monthly progress estimate.

END OF SECTION 01 57 13

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Products.

B. Transportation and handling.

C. Storage and protection.

D. Scheduling and coordination.

E. Product options.

F. Substitutions.

G. Installation requirements.

H. Equipment demonstration.

I. Manufacturer's Representative.

1.02 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. This does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

C. Provide interchangeable components of the same manufacturer for similar components.

1.03 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with supplier's or manufacturer's written instructions.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

D. When unloading materials, equipment, and machinery, provide special lifting harness or apparatus as may be required by manufacturers.

1.04 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

B. For exterior storage of fabricated products, place on sloped supports, above ground.

C. Provide off-site storage and protection when site does not permit on-site storage or protection.

D. Cover products subject to deterioration with appropriate covering to prevent damage.

E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.05 SCHEDULING AND COORDINATION (IF APPLICABLE)

A. Coordinate the delivery and installation of equipment with the Work of other sections.

B. Electrical Interface: Install or mount, as work of this Contract, those electrical components or apparatus as required for the equipment specified in this Contract.

C. Start-up and testing: Coordinate start-up and testing with work of other sections and ensure that required utilities and water supply are available.

D. The City will not be responsible for damaged or stolen material. It is up to the Contractor to properly secure stored material.

1.06 PRODUCT OPTIONS

A. Products specified by reference standards or by description only: Any product meeting those standards or description.

B. Products specified by naming one or more manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products specified by naming one or more manufacturers with a provision for substitutions: Submit a request for substitution for any manufacturer not named.

1.07 SUBSTITUTIONS

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions.

B. After bidding, substitutions may be considered when a product becomes unavailable through no fault of the Contractor by following the procedure described in the following paragraphs. Other requests for substitutions shall follow procedures described in General Conditions.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request constitutes a representation that the Bidder:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
2. Will provide the same warranty for the Substitution as for the specified product.
3. Will coordinate installation and make changes to other Work, which may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension, which may subsequently become apparent.

E. Substitutions will not be considered when they are indicated or implied on product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence.
3. The Engineer will notify Bidder, in writing, of decision to accept or reject request prior to closing date for bids.

1.08 INSTALLATION REQUIREMENTS

A. The Contractor shall check all dimensions indicated immediately after award of the Contract. Advise the Engineer promptly of any discrepancies or interferences and obtain such measurements and information as may be required to satisfactorily install the work.

B. Before ordering any material or doing any work, the Contractor shall verify all measurements and elevations and shall be responsible for the correctness of same. Any difference, which may be found, between field measurements and elevations and those indicated shall be promptly submitted to the Engineer for adjustment and approval before proceeding with the work.

C. Verify that site conditions are ready to receive the Work.

D. The Contractor shall lay out work and establish heights and grades in strict accordance with the Drawings, the building and finished site grades, and shall be responsible for the accuracy of such layout.

E. Verify that required utilities are available and of the correct characteristics.

F. Align, level and adjust equipment for satisfactory operation: install so that connecting and disconnecting of piping and accessories can be done readily, and so that all parts are easily accessible for inspection, operation and maintenance.

G. Material and equipment shall be installed in accordance with manufacturers' written instructions and recommendations.

H. Furnish and apply any initial grease or oil recommended by manufacturer before start-up.

I. Manufacturer's representative shall review equipment installation and provide written certification that equipment and its installation meet manufacturer's recommendations and comply with the Specifications.

J. Contractor shall coordinate installation of equipment.

K. In the event that installation requirements need clarification as to Contract responsibility, Engineer shall be final judge in delineation of responsibility. In no case shall need for clarification result in extension of Contract Time or change in Contract Price.

1.09 EQUIPMENT AND APPURTENANCE DEMONSTRATION (IF APPLICABLE)

A. Contractor shall furnish all labor, tools, materials, equipment and water for all demonstration tests.

B. Operation of equipment or appurtenance during all phases of demonstration prior to Final Acceptance by Owner and Engineer is the Contractor's complete responsibility.

C Notify Engineer and Owner seven days in advance of each test or demonstration.

D. Initial equipment start-up: After manufacturer's representative has reviewed the installation of his equipment and found it acceptable, he shall place equipment in operation. He shall perform all tests necessary to ensure each item of equipment operates in accordance with the design intent and Specifications. At a minimum the following tests are required:

1. Pressure test mains to make sure they can withstand 165 PSI of pressure for two (2) hours

E. Correction of deficiencies - All performance deficiencies, leaks, misalignments found during start-up shall be corrected at Contractor's expense. Correction may include replacement of defective equipment or appurtenance if Engineer so recommends. Correction must be performed and accepted by Engineer prior to demonstrations.

F. Initial Performance Test: When equipment or appurtenance has been started and tested by manufacturer's representative, all deficiencies have been corrected, and equipment operates as specified, Contractor shall demonstrate tests described in 1.09 D. above and other appropriate function tests to the Engineer and Owner.

G. System Performance Demonstration: When individual items of equipment which are part of a system have been shown to operate satisfactorily to Owner and Engineer, Contractor shall operate all equipment or appurtenance together as a system. Contractor shall test all performance functions, all alternate and emergency operating procedures and all alarm conditions using actual or simulated conditions. Contractor shall coordinate demonstration to ensure all required manufacturer's representatives and subcontractors are present. Each manufacturer's representative shall ensure that his equipment is performing as intended. All deficiencies shall be corrected at Contractor's expense.

H. Contractor shall propose demonstration procedure in writing three days in advance for Engineer's review. Demonstration shall include all performance functions both for individual equipment components and entire system, all alarm conditions and all alternate and emergency operating procedures. All portions of system shall be operating simultaneously. All equipment must be permanently installed with permanent utility supplies and connections before demonstration may be scheduled. Demonstration shall continue until a minimum of two hours has accumulated when entire system is operating according to design intent and as specified.

I. Successful Demonstration: When all constructed components perform individually and as an integrated whole according to the design intent and as specified and all deficiencies have been permanently corrected, System Performance Demonstration shall be considered successful.

J. Repeat Demonstration: When defects are encountered, repeat Demonstration after corrective actions have been taken. Continue this process until no defects are encountered.

1.10 MANUFACTURER'S REPRESENTATIVE

Not Used

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01 60 00

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SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Close-out procedures.

B. Final cleaning.

C. Adjusting.

D. Project record documents.

E. Operation and maintenance manuals.

F. Warranties.

G. Spare parts and maintenance materials.

1.02 CLOSE-OUT PROCEDURES

A. 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.

B. Provide submittals to Engineer or Owner that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. Include all specified releases, guarantees, waivers and other documents.

1.03 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean site; sweep paved areas, rake clean landscaped surfaces.

C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

D. The Contractor shall be responsible for final cleaning of area(s) and equipment.

1.04 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

1.05 PROJECT RECORD DOCUMENTS

A. Maintain on site, one set of the following record documents; record actual revisions to the Work:

1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed shop drawings product data, and samples.

B. Store Record Documents separate from documents used for construction.

C. Record information concurrent with construction progress and make available for Engineer's review prior to each monthly payment.

D. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number or description.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

E. Record Documents and As-Built Drawings: Legibly mark each item to record actual construction including:

1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
2. Measured depths to foundations in relation to finish floors, or top of tanks or structures.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
4. Field changes of dimension and detail.
5. Details not on original Contract Drawings.

F. Delete Engineer title block and seal from all documents.

G. Submit documents to Engineer with Contractor's notification that project is Substantially Complete.

1.06 WARRANTIES

A. Provide duplicate copies.

B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.

C. Assemble in binder with durable cover.

D. Submit with Operation and Maintenance Manuals.

E. Provide starting and ending dates of warranty period.

F. Contractor is responsible for providing warranties for the respective Work.

1. Contractor shall prepare bound copies.

G. Contractor shall submit prepared for of Maintenance Bond in the amount of 100% of total project cost.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.

B. Deliver and place in location as directed; obtain receipt prior to final payment.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

END OF SECTION 01 77 00

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SECTION 02 06 30

SCHEDULES FOR SUBSURFACE INVESTIGATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Investigative work required to determine the precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement and recording of the location of a subsurface utility.

B. Non-destructive excavation to expose and verify the location of existing buried facilities.

1.02 FIELD MEASUREMENTS

A. Verify that survey information related to the horizontal and vertical location of existing utilities is recorded and submitted to the Engineer

1.03 REFERENCE STANDARDS

A. CI/ASCE 38-02*:* "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data," American Society of Civil Engineers, 2003. QL A: Utility Quality Level A. QL A indicates the precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point.

1.04 WORK LOCATIONS

A. Contractor shall use surface geophysical methods to locate and verify the location of existing utilities in areas scheduled for the open cut removal and replacement or abandonment of existing water mains and/or as designated by the Engineer.

1.05 SUBMITTALS

A. Name and qualifications of the firm selected to investigate and record the location of existing facilities. The selected firm shall be regularly engaged in the business of utility location and shall be able to demonstrate this experience.

B. All required reports, documentation, studies, field notes and sketches, plan drawings, and electronic data shall be submitted for review and acceptance by the Engineer.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

3.01 PREPARATION

A. Deploy necessary personnel, equipment, and supplies to the work site, in preparation for the work.

B. Whenever the work will affect the movement of traffic or traffic safety, provide traffic control and utilize traffic control devices in conformance with the Delaware MUTCD.

C. Obtain all necessary permits from the Kent Conservation District, State of Delaware, DelDOT and/or local jurisdictions to allow the Contractor to work within public rights of way.

D. Records and Information Research - Conduct appropriate investigations (e.g., owner records, DOT records, County records, personal interviews, visual inspections, etc.), to help identify utility owners that may have facilities within the project limits or that may be affected by the project.

E. Records Collection - Collect applicable records (e.g., utility owner base maps, "as built" or record drawings, permit records, field notes, geographic information system data, oral histories, etc.) on the existence and approximate location of existing involved utilities.

F. Records Review - Review records for: evidence or indication of additional available records; duplicate or conflicting information; need for clarification.

G. Compilation and Presentation of Data. - Transfer information on all involved utilities to appropriate plan sheets, electronic files, and/or other documents as required. Exercise professional judgment to resolve conflicting information.

3.02 EXISTING UTILITY MARK OUT

A. Identify surface features, from project maps (if available) and from field observations, which are surface appurtenances of subsurface utilities.

B. Select and apply appropriate surface geophysical method(s) to search for and detect subsurface utilities within the project limits, and/or to trace a particular utility line or system.

1. Based on an interpretation of data, mark the indications of utilities on the ground surface, for subsequent survey. Utilize paint or other method acceptable to Engineer for marking of lines.
2. Utilize the uniform color code of the American Public Works Association for marking of utilities.
3. Unless otherwise directed, mark centerline of single-conduit lines, and outside edges of multi-conduit systems.
4. Unless otherwise approved, maintain horizontal accuracy of +/- 1.5 feet (450 mm) in the marking of lines.
5. As an alternative to the physical marking of lines, the Contractor may, with the Engineers approval, utilize other means of data collection, storage, retrieval, and reduction that enables the correlation of surface geophysical data to the project's survey control.
6. Record locations of all markings that indicate the presence of a subsurface utility.

3.03 EXCAVATION

A. Precise horizontal and vertical location of utilities is required prior to the excavation required to replace existing facilities at the site. The Contractor is required to “test pit” locations based on the requirements of the project and on existing subsurface utility information to accurately record the location of existing underground utilities at the site and assure the utilities are not damaged during construction or as a result of construction.

B. The Contractor shall comply with all applicable provisions of DE State Law when planning or performing excavations at utility test hole sites. Compliance actions include, but are not limited to: notify owners or operators of underground utility facilities at least two (2) business days prior (not including the day of actual notice) to making or beginning excavations in the vicinity of such facilities; contact non-member utilities directly; coordinate with utility owner representatives as required for inspection or other on-site assistance; immediately cease excavation work, report any resultant utility line damage to utility owner and conduct the necessary repairs to utilities damaged as a result of excavation at no additional cost to the Owner.

C. The Contractor shall use minimally intrusive excavation techniques, acceptable to the Engineer, that ensure the safety of the excavation, the integrity of the utility line to be measured, and that of other lines which may be encountered during excavation. The Engineer intends that excavation shall be by means of air- or water-assisted vacuum excavation equipment manufactured specifically for the purpose. Provided, however, that approval of water-assisted vacuum excavation shall pose no risk of damage to the paved facility or utility lines.

1. Clear the test hole area of surface debris.
2. In paved areas, neatly cut and remove existing pavement.
3. Excavate the test hole by the method(s) chosen by the Contractor.
4. Expose the utility only to the extent required for identification and data collection purposes.
5. Avoid damage to lines, wrappings, coatings, cathodic protection or other protective coverings and features.
6. Hand-dig as needed to supplement mechanical excavation and to ensure safety.
7. Revise the test hole location as necessary to positively expose the utility.
8. Store excavated material for re-use or disposal, as appropriate.
9. Underpin adjacent structures which may be damaged by excavation work, including utilities and pipe chases.
10. Comply with all Federal, State and local codes, permits and regulations.
11. Excavation cut not to interfere with normal 45 degrees bearing splay of foundations or any other adjacent structures or utilities.
12. Grade top perimeter of excavation to prevent surface water from draining into excavation.
13. Hand trim excavation. Remove loose matter.
14. Remove lumped subsoil, boulders and rock at no extra cost to the Owner.
15. Notify Engineer of unexpected subsurface conditions or utility damage.
16. Correct unauthorized excavation at no extra cost to Owner.
17. Correct areas over-excavated by error.
18. Remove overburden / spoils from the site and dispose of in accordance with State and Local regulations.

19. Excavations shall be kept dewatered by such methods as the Contractor deems necessary. Where pumping is required, a sufficient number of pumps of adequate size shall be employed to keep the excavations dry and free of water at all times during excavation, and until the work is completed. Sumps shall be constructed where necessary. Water removed from excavations shall be directed to a sediment bag, or other approved device, and shall be disposed of in such a manner as to not cause injury to public health, private property, street surfaces, embankments, or to any portion of the work completed or in progress.

20. Support excavations with sheathing, shoring and bracing or with a "trench box" as required to comply with OSHA regulations.

21. Install adequate excavation supports to prevent ground movement or settlement to adjacent structures, pipelines or utilities. Damage due to settlement because of failure to provide support or through fault of the Contractor in any other manner, shall be repaired at the Contractor's expense.

22. Withdraw excavation supports when work is complete.

3.04 COLLECTION, RECORDING, AND PRESENTATION OF DATA.

A. Measure and/or record the following information on an appropriately formatted test hole data sheet that has been sealed and prepared by the Contractor.

1. Elevation of top and/or bottom of the utility tied to the project datum, to a vertical accuracy of +/- 0.05 feet (15 mm).
2. Elevation of existing grade over utility at test hole.
3. Horizontal location referenced to project coordinate datum, to a horizontal accuracy consistent with applicable DOT survey standards.
4. Field sketch showing horizontal location referenced to a minimum of three (3) swing ties to physical structures existing in the field and shown on the project plans.
5. Approximate centerline bearing of utility line.
6. Outside diameter of pipe, width of duct banks, and configuration of non-encased multi-conduit systems.
7. Utility structure material composition, when reasonably ascertainable.
8. Identity of benchmarks used to determine elevations.
9. Other pertinent information as is reasonably ascertainable from test hole.

3.05 SITE RESTORATION

A. Backfill excavation and restore the area disturbed.

1. Replace bedding material around exposed utility lines in accordance with owner's specifications or as otherwise directed or approved.
2. Backfill and compact the excavation in a manner acceptable to Engineer. If approved, re-use excavated material with appropriate moisture/density control.
3. Install color-coded warning ribbon within the backfill area and directly above the utility line.

4. As applicable, provide permanent pavement restoration within the limits of the original cut using materials, compaction, and pavement thickness shown on the Contract Details attached to the Contract Documents.

5. Repair or replace backfill or pavement that fails (i.e., subsidence and/or loss of pavement material) in accordance with the Warranty period required in the Contract Documents.

6. For excavations in unpaved areas, restore disturbed area as nearly as practicable to pre-existing conditions and in conformance to the restoration requirements of the Contract Documents.

END OF SECTION 02 06 30

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SECTION 02 21 00

SURVEYS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Provide field engineering and surveying services for stake out of all project features and structures as indicated on the Drawings and specified herein.

B. Identify project benchmarks.

C. Provide surveys for Record Drawings.

1.02 QUALITY CONTROL

A. The Contractor shall employ a Professional Land Surveyor (Surveyor) registered in The State of Delaware and acceptable to Engineer. Surveyor shall establish all lines, elevations, reference marks, batterboards, etc., needed by the Contractor or Engineer during the progress of the Work, and from time to time to verify such marks by instrument or other appropriate means.

B. The Engineer shall be permitted at all times to check the lines, elevations, reference marks, batterboards, etc., set by the Contractor, who will correct any errors in lines, elevations, reference marks, batterboards, etc., disclosed by such check. Such a check shall not be construed to be an approval of the Contractor Work and shall not relieve or diminish in any way the responsibility of the Contractor for the accurate and satisfactory construction and completion of the entire Work of this Project.

C. At completion of the Work of this Project, the Contractor shall have Surveyor prepare record "as-built" drawings showing the location of all Work installed and submit the "as-built" drawings to the Engineer for review. Certification of the "as-built" drawings by Surveyor is required.

1.03 FIELD CONDITIONS AND MEASUREMENTS

A. The Contractor shall base all measurements, both horizontal and vertical, from established benchmarks. The Contractor shall be responsible for field verification of all dimensions and conditions at the job site.

B. Should the Contractor discover any discrepancy between actual conditions and those indicated on the Drawings, which prevent the following of good practice or the intent of the Drawings and Specifications, he shall notify the Engineer, request clarification and instructions, and shall not proceed with his Work until he has received instructions from the Engineer; provided that such wait does not unduly delay the progress of the Work.

C. No claims shall be made for extra payment or extensions of Contract completion time if the Contractor fails to notify the Engineer of any discrepancy before proceeding.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Submit name, address, and telephone number of Surveyor to Engineer before starting Work.

C. On request, submit documentation verifying accuracy of survey Work.

D. Submit certificate signed by Surveyor, certifying that elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 INSPECTION

A. Verify location of survey control points prior to starting Work. Promptly notify Engineer of any discrepancies.

END OF SECTION 02 21 00

SECTION 02 41 00

DEMOLITION

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Contractor shall provide all labor, materials, equipment and incidentals required for demolition work.

B. Without intending to limit or restrict the extent of work required under contract, the work generally comprises of the removal of piping as well as abandonment of pipes in place using flowable fill as detailed on the Contract Drawings.

1.02 SUBMITTALS

A. Submit in accordance with Section 01 33 00 Submittal Procedures.

B. Demolition Sequence: Indicate demolition, removal procedures, operational sequence, construction of barricades, fences and other temporary work.

C. Permits and or notices required for demolition.

D. Permits for transport and disposal of sewage and debris.

1.03 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 77 00 Closeout Procedures.

B. Accurately record actual locations of utilities, pipes subsurface foundations, and other obstructions that remain adjacent to demolition as required under provisions of Section 01 77 00.

1.04 REGULATORY REQUIREMENTS

A. Conform to applicable local, State and Federal codes and regulations for demolition work; safety of workers; dust and runoff control; and abandonment of sewer systems.

B. Obtain all required permits and notices from authorities for all portions of the work.

C. Use of explosives will not be permitted.

D. Notify affected utility companies before starting work, and comply with their requirements.

1.05 SCHEDULING

A. Schedule work under provisions of Section 01 32 16 Construction Progress Schedule.

B. Describe demolition removal sequence and schedule for review by Engineer.

C. Notify engineer in writing seven days prior to commencement of demolition work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill materials as specified in Section 31 23 23.13 Backfilling.

PART 3 EXECUTION

3.01 PREPARATION AND PROTECTION

A. Before beginning any cutting or demolition work, the Contractor shall carefully survey the existing work and examine the Drawings and Specifications to determine the extent of the Work. The Contractor shall take all necessary precautions to ensure against damage to storm water lines to remain in place and any damage to such work shall be repaired or replaced at no additional cost to the Owner. The Contractor shall carefully coordinate the work of this section with all other work and construct and maintain shoring, bracing, and supports, as required. The Contractor shall ensure that structural elements are not overloaded and be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under any part of this contract. Contractor shall protect all underground structures or existing utilities from damage by demolition work.

B. Contractor shall provide “test pits” to locate utilities as needed to prevent damage.

C. Perform all demolition and removal Work to prevent damage to adjacent properties and areas and features not designated to be demolished. Any damage caused by Work shall be repaired at Contractor’s expense.

3.02 GENERAL REQUIREMENTS

A. Conduct operations with minimum interference to roadways and other accesses adjacent to the Work. Maintain access and egress at all times. Closing or obstruction of accesses and fire hydrants will not be permitted without proper authorization.

B. Obtain written permission from adjacent property owners when demolition and removal equipment will traverse, infringe upon, or limit access to their property.

C. When underground piping is to be altered or removed, the remaining piping shall be properly capped and plugged with flowable fill concrete.

D. Arrange for, and verify termination of utility services.

E. Equipment removed for Owner shall be cleaned and stored for the Owner upon removal. This equipment and/or materials are listed on the drawings.

END OF SECTION 02 41 00

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.
2. Cast-in-place concrete included in this section shall be for concrete associated with electrical equipment foundations and pads, and concrete thrust blocks poured against pipe fittings.

1.02 REFERENCES

A. Definitions

1. Cementitious Material: Portland cement, pozzolan, fly ash, ground granulated blast-furnace slag, and silica fume.
2. Exposed to Public View: situated so that it can be seen from eye level from a public location after completion of the building. A public location is accessible to persons not responsible for operation or maintenance of the building.
3. Chemical Admixtures: materials in the form of powder or fluids that are added to the concrete to give it certain characteristics not obtainable with plain concrete mixes.
4. Workability (or Consistence): the ability of a fresh (plastic) concrete mix to fill the form/mold properly with the desired work (vibration) and without reducing the concrete's quality. Workability depends on water content, chemical admixtures, aggregate (shape and size distribution), cementitious content and age (level of hydration).

B. Reference Standards

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

1. American Concrete Institute (ACI)
    a. ACI 117 Specifications for Tolerances for Concrete Construction and Materials.
    b. ACI 301 Specifications for Structural Concrete, Sections 1 through 5.
    c. ACI 302.1R Guide for Concrete Floor and Slab Construction
    d. ACI 305 Hot Weather Concreting
    e. ACI 306.1 Standard Specification for Cold Weather Concreting
    f. ACI 308.1 Guide to Curing Concrete

g. ACI 318 Errata 2008; Errata 2009; Errata 2009; Errata 2009; Errata 2009; Errata 2009) Building Code Requirements for Structural Concrete and Commentary

h. ACI 347 Guide for Shoring/Reshoring of Concrete Multistory Buildings

i. ACI 350 Environmental Engineering Concrete Structures

j. ACI CP-1 Manual of Concrete Practice Part 1: ACI 104-71R-97 to 223-98

2. American Institute of Steel Construction (AISC)
   a. Code of Standard Practice for Steel Buildings and Bridges

3. ASTM International (ASTM)

   a. ASTM A82/A82M Standard Specification for Steel Wire, Plain, for Concrete Reinforcement

   b. ASTM A184/A184M Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement

   c. ASTM A185/A185M Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete

   d. ASTM A496/A496M Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement

   e. ASTM A497/A497M Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete

   f. ASTM A615/A615M Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

   g. ASTM A706/A706M Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement

   h. ASTM C31/C31M Standard Practice for Making and Curing Concrete Test Specimens in the Field

   i. ASTM C33 Standard Specification for Concrete Aggregates

   j. ASTM C39/C39M Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

   k. ASTM C42/C42M Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

   l. ASTM C94/C94M Standard Specification for Ready-Mixed Concrete

   m. ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)

   n. ASTM C143/C143M Standard Test Method for Slump of Hydraulic-Cement Concrete

   o. ASTM C150 Standard Specification for Portland Cement

   p. ASTM C171 Standard Specification for Sheet Materials for Curing Concrete

q. ASTM C172 Standard Practice for Sampling Freshly Mixed Concrete

r. ASTM C219 Standard Terminology Relating to Hydraulic Cement

s. ASTM C231 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

t. ASTM C260 Standard Specification for Air-Entraining Admixtures for Concrete

u. ASTM C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

v. ASTM C330 Standard Specification for Lightweight Aggregates for Structural Concrete

w. ASTM C494/C494M Standard Specification for Chemical Admixtures for Concrete

x. ASTM C567 Determining Density of Structural Lightweight Concrete

y. ASTM C595 Standard Specification for Blended Hydraulic Cements

z. ASTM C881 Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete

aa. ASTM C989 Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

ab. ASTM C1017/C1017M Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete

ac. ASTM C1059/C1059M Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete

ad. ASTM C1064/C1064M Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete

ae. ASTM C1077 Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation

af. ASTM C1240 Standard Specification for Silica Fume Used in Cementitious Mixtures

ag. ASTM D448 Standard Classification for Sizes of Aggregate for Road and Bridge Construction

ah. ASTM D1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)

ai. ASTM D4397 Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

aj. ASTM E329 Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

ak. ASTM E1643 Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

4. American Welding Society (AWS)
    a. AWS D1.4/D1.4M Structural Welding Code - Reinforcing Steel
5. Concrete Reinforcing Steel Institute (CRSI)
    a. CRSI 10MSP Manual of Standard Practice
6. U.S. Department of Commerce (DOC)
    a. DOC PS 1 Construction and Industrial Plywood
7. National Ready Mix Concrete Association (NRMCA)
    a. Certification of Ready Mixed Concrete Production Facilities

1.03 SUBMITTALS

Engineer review is required for submittals designated as “Action Submittals”. Submittals not designated as "Action Submittals" are for Contractor Quality Control approval and are to be submitted to Engineer for information only. Submit the following in accordance with Section 01 33 00 Submittal Procedures:

A. Action Submittals
    1. Product Data
        a. Submit manufacturer's product data for each type of product indicated.
            1) Concrete curing materials
            2) Joint sealants
            3) Joint filler
            4) Forms
            5) Portland cement
            6) Vapor retarder
            7) Reinforcement materials
            8) Waterstops
    2. Concrete Mix Design
        a. Thirty days minimum prior to concrete placement, submit a mix design for each strength and type of concrete.
        b. Submit a complete list of materials including type; brand; source and amount of cement and admixtures; and applicable reference specifications.
        c. Provide mix proportion data using at least three different water-cement ratios for each type of mixture, which produce a range of strength encompassing those required for each class and type of concrete required.
        d. If source material changes, resubmit mix proportion data using revised source material.
        e. Provide only materials that have been proven by trial mix studies to meet the requirements of this specification, unless otherwise approved in writing by the Contract Administrator.
        f. Indicate clearly in the submittal where each mix design is used when more than one mix design is submitted.
        g. Submit additional data regarding concrete aggregates if the source of aggregate changes.

h. The approval of fly ash, silica fume, and pozzolan, and polypropylene fibers test results must be within 6 months of submittal date.

i. Obtain acknowledgement of receipt prior to concrete placement.

3. Shop Drawings

a. Steel Reinforcement Shop Drawings

1) Placing drawings that detail fabrication, bending, and placement.

2) Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

b. Formwork Shop Drawings

1) Prepared by or under the supervision of a qualified Delaware professional engineer detailing fabrication, assembly, and support of formwork.

2) Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and reshoring installation and removal.

c. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

B. Informational Submittals

1. Certificates

a. Welding certificates.

b. Material Certificates: For each of the following, signed by manufacturers:

1) Cementitious materials.

2) Admixtures.

3) Form materials and form-release agents.

4) Steel reinforcement and accessories.

5) Waterstops.

6) Curing compounds.

7) Adhesives.

8) Vapor retarders.

9) Semi-rigid joint filler.

10) Joint-filler strips.

11) Repair materials.

2. Test and Evaluation Reports

a. Concrete mix design

b. Aggregates

c. Fiber-reinforced concrete

d. Compressive strength tests

e. Unit weight of structural lightweight concrete

f. Slump

g. Air Entrainment

3. Field Quality Control Submittals
    a. Field quality-control reports.
4. Qualification Statements
    a. For testing agency.

C. Closeout Submittals

Not Used

D. Maintenance Material Submittals

Not Used

1.04 QUALITY ASSURANCE

A. Qualifications

1. Manufacturer
    a. Experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
    b. Certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
2. Fabricator
    a. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D1.4M, "Structural Welding Code - Reinforcing Steel."
3. Testing Agency
    a. An independent agency qualified according to ASTM C1077 and ASTM E329 for testing indicated.
        1) Personnel conducting field tests: qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
        2) Personnel performing laboratory tests: ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I.
        3) Testing Agency laboratory supervisor: ACI-certified Concrete Laboratory Testing Technician - Grade II.
    b. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Storage and Handling Requirements

1. Do not deliver concrete until vapor retarder, forms, reinforcement, embedded items, and chamfer strips are in place and ready for concrete placement.
2. ACI/MCP-2 for job site storage of materials.
3. Protect materials from contaminants such as grease, oil, and dirt.
4. Ensure materials can be accurately identified after bundles are broken and tags removed.

5. Do not store concrete curing compounds or sealers with materials that have a high capacity to adsorb volatile organic compound (VOC) emissions.
6. Do not store concrete curing compounds or sealers in occupied spaces.
7. Reinforcement
    a. Store reinforcement of different sizes and shapes in separate piles or racks raised above the ground.
    b. Protect from contaminants such as grease, oil, and dirt.
    c. Ensure bar sizes can be accurately identified after bundles are broken and tags removed.
8. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

PART 2 PRODUCTS

2.01 OWNER-FURNISHED PRODUCTS

Not Used

2.02 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
    1. Plywood, metal, or other approved panel materials.
    2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
        a. High-density overlay, Class 1 or better.
        b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
        c. Structural 1, B-B or better; mill oiled and edge sealed.
        d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

D. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.

E. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.

F. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

G. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

H. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

I. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.

2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.

3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.03 STEEL REINFORCEMENT (NOT APPLICABLE)

A. Recycled Content: Minimum 5 percent post-consumer recycled content, or minimum 20 percent pre-consumer recycled content at Contractor’s option.

B. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.

C. Low-Alloy-Steel Reinforcing Bars: ASTM A706/A706M, deformed.

D. Steel Bar Mats: ASTM A184/A184M, fabricated from ASTM A615/A615M, Grade 60, deformed bars, assembled with clips.

E. Plain-Steel Wire: ASTM A82/A82M, as drawn.

F. Deformed-Steel Wire: ASTM A496/A496M.

G. Plain-Steel Welded Wire Reinforcement: ASTM A185/A185M, plain, fabricated from as-drawn steel wire into flat sheets.

H. Deformed-Steel Welded Wire Reinforcement: ASTM A497/A497M, flat sheet.

I. Galvanized-Steel Welded Wire Reinforcement: ASTM A185/A185M, plain, fabricated from galvanized-steel wire into flat sheets.

2.04 REINFORCEMENT ACCESSORIES

A. Recycled Content: Minimum 5 percent post-consumer recycled content, or minimum 20 percent pre-consumer recycled content at Contractor’s option.

B. Joint Dowel Bars: ASTM A615/A615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

2.05 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C150, Type I/II, gray. Supplement with the following:
   a. Ground Granulated Blast-Furnace Slag: ASTM C989, Grade 100 or 120.
2. Blended Hydraulic Cement: ASTM C595, Type IS, portland blast-furnace slag cement.
3. Portland Cement: ASTM C150, Type II, for all environmental concrete.

B. Silica Fume: ASTM C1240, amorphous silica.

C. Normal-Weight Aggregates: ASTM C33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.

1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal. Maximum aggregate size shall comply with recommendations in ACI 350 for Environmental Structures.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Lightweight Aggregate: ASTM C330, 1-inch nominal maximum aggregate size.

E. Water: ASTM C94/C94M and potable.

2.06 ADMIXTURES

A. Air-Entraining Admixture: ASTM C260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
2. Retarding Admixture: ASTM C494/C494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F. The admixture shall be Rehobuild 1000 as manufactured by Master Builders or approved equal.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.

C. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494/C494M, Type C.

1. Products: Subject to compliance with requirements, provide one of the following:
    a. Axim Italcementi Group, Inc.; CATEXOL CN-CI.
    b. BASF Construction Chemicals - Building Systems; Rheocrete CNI.
    c. Grace Construction Products, W. R. Grace & Co.; DCI.
    d. Sika Corporation; Sika CNI.

D. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

1. Products: Subject to compliance with requirements, provide one of the following:
    a. BASF Construction Chemicals - Building Systems; Rheocrete 222+.
    b. Grace Construction Products, W. R. Grace & Co.; DCI-S.
    c. Sika Corporation; FerroGard 901.

2.07 WATERSTOPS (NOT APPLICABLE)

A. Flexible PVC Waterstops: CE CRD-C 572, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. BoMetals, Inc.
    b. Greenstreak.
    c. Paul Murphy Plastics Company.
    d. Vinylex Corp.
    e. Westec
2. Profile: Flat, dumbbell with center bulb as indicated.
3. Dimensions: 6 inches by 3/8 inch thick ; nontapered.

2.08 VAPOR RETARDERS (NOT APPLICABLE)

A. Sheet Vapor Retarder: Polyethylene sheet, ASTM D4397, not less than 10 mils thick.

B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D448, Size 57, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

C. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D448, Size 10, with 100 percent passing a 3/8-inch sieve, 10 to 30 percent passing a No. 100 sieve, and at least 5 percent passing No. 200 sieve; complying with deleterious substance limits of ASTM C33 for fine aggregates.

2.09 CURING MATERIALS

A. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.

B. Water: Potable.

C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

1. Products: Subject to compliance with requirements, provide one of the following:
   a. Anti-Hydro International, Inc.; AH Clear Cure WB.
   b. BASF Construction Chemicals - Building Systems; Kure-N-Seal WB.
   c. ChemMasters; Safe-Cure & Seal 20.
   d. Conspec by Dayton Superior; Cure and Seal WB.
   e. Cresset Chemical Company; Crete-Trete 309-VOC Cure & Seal.
   f. Dayton Superior Corporation; Safe Cure and Seal (J-18).
   g. Edoco by Dayton Superior; Spartan Cote WB II.
   h. Euclid Chemical Company (The), an RPM company; Aqua Cure VOX; Clearseal WB 150.
   i. Kaufman Products, Inc.; Cure & Seal 309 Emulsion.
   j. Lambert Corporation; Glazecote Sealer-20.
   k. Meadows, W. R., Inc.; Vocomp-20.
   l. Metalcrete Industries; Metcure.
   m. Nox-Crete Products Group; Cure & Seal 150E.
   n. Symons by Dayton Superior; Cure & Seal 18 Percent E.
   o. TK Products, Division of Sierra Corporation; TK-2519 WB.
   p. Vexcon Chemicals, Inc.; Starseal 309.

2.10 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.

B. Bonding Agent: ASTM C1059/C1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

C. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

D. Reglets: Fabricate reglets of not less than 0.022 inch thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

E. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.11 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS (NOT APPLICABLE)

A. Footings: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.40.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

B. Foundation Walls: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.50.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

C. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.
2. Minimum Cementitious Materials Content: 470 lb/cu. yd.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.

5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

6. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

D. Suspended Slabs: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 5000 psi at 28 days.

2. Minimum Cementitious Materials Content: 520 lb/cu. yd.

3. Slump Limit: 4 inches, plus or minus 1 inch.

4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.

5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

6. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.

E. Building Walls: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi at 28 days.

2. Maximum Water-Cementitious Materials Ratio: 0.45.

3. Slump Limit: 4 inches, plus or minus 1 inch.

4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.

5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

2.13 FABRICATING REINFORCEMENT (NOT APPLICABLE)

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94/C94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.

2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

2.15 SOURCE QUALITY CONTROL

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

Not Used

3.02 PREPARATION

Not Used

3.03 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.04 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchor slots in concrete structures as indicated.

3.05 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

3.06 SHORES AND RESHORES (NOT APPLICABLE)

A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.

1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.

B. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

C. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.07 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturer's recommended tape.

3.08 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

1. Weld reinforcing bars according to AWS D1.4/D1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.09 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.

2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.

3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.

6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants are indicated.

3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.10 WATERSTOPS (NOT APPLICABLE)

A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

3.11 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 305 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.12 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.13 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces indicated.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.

2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.

D. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

3.14 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel finish concrete surfaces.

3.15 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    a. Water.
    b. Continuous water-fog spray.

c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
   b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
   c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.16 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Engineer’s approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Engineer’s approval.

3.17 FIELD QUALITY CONTROL

A. Testing and Inspecting: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

B. Inspections:

1. Steel reinforcement placement.
2. Steel reinforcement welding.
3. Headed bolts and studs.
4. Verification of use of required design mixture.
5. Concrete placement, including conveying and depositing.
6. Curing procedures and maintenance of curing temperature.
7. Verification of concrete strength before removal of shores and forms from beams and slabs.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
    a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
3. Slump: ASTM C143/C143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
6. Unit Weight: ASTM C567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C31/C31M.
    a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
    b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
8. Compressive-Strength Tests: ASTM C39/C39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
    a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.

b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

11. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.

13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Engineer.

14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 03 30 00

SECTION 31 10 00

SITE CLEARING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Remove surface debris.

B. Remove paving, curbs, and/or other surface rock as required to complete the Work.

C. Clear site of all vegetation as required for construction.

D. Remove trees and shrubs.

E. Remove root system of trees and shrubs.

F. Set temporary fencing at the perimeter of clearing where equipment and personnel must be contained such as woodlines, and wetlands, and other properties.

1.02 REGULATORY REQUIREMENTS

A. Conform to applicable codes for disposal of debris.

B. Coordinate clearing work with utility companies.

C. Conform to Erosion and Sediment Control requirements.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Provide all materials and equipment required to complete all clearing and grubbing in accordance with this Section.

PART 3 EXECUTION

3.01 PREPARATION

A. Verify that existing plant life and features designated to remain are tagged or identified.

3.02 PROTECTION

A. Protect utilities that remain, from damage.

B. Protect trees, plant growth, and features designated to remain as final landscaping.

C. Protect benchmarks and existing structures from damage or displacement.

3.03 CLEARING

A. Clear areas required for access to site and execution of work.

B. Remove paving and curbs as required to finish the Work.

C. Remove trees and shrubs, stumps, root systems and surface rock.

D. Clear undergrowth and deadwood without disturbing subsoil.

3.04 REMOVAL

A. Remove debris, rock, and extracted plant life from site. All materials shall be disposed of in accordance with the requirements of the applicable governing agencies.

B. Burning of logs, stumps, roots, cuttings and other material on the site will not be permitted.

C. Chipping of brush materials will be permitted, but the resultant chips must be disposed of at an approved location.

END OF SECTION 31 10 00

SECTION 31 22 13

ROUGH GRADING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Remove topsoil.

B. Excavate subsoil.

C. Grade and rough contour site.

D. Exercise the necessary means and methods to control dust on the site as well as in off-site work areas where excavation grading is required.

E. When it is necessary to haul soft or wet soil materials over roadways, use suitably tight vehicles to prevent spillage. Clear salvage or materials on roadways at no expense to the Owner.

F. Unsuitable material such as sod, stumps and spongy soils shall become the property of the Contractor and shall be disposed of legally. The Contractor shall dispose of unsuitable material off-site. The disposal of excess material may require the Contractor to develop a disposal plan for approval by the Owner and regulatory agencies.

1.02 PROJECT RECORD DOCUMENTS

A. Accurately record location of utilities remaining, rerouted utilities, new utilities by horizontal dimensions, elevations or inverts, and slope gradients.

1.03 PROTECTION

A. Protect trees, shrubs, lawns, and other features remaining as portion of final landscaping.

B. Protect bench marks, existing structures, fences, roads, sidewalks, paving, and curbs if not to be removed.

C. Protect above or below grade utilities pipes and conduits which are to remain.

D. Contractor shall assume complete responsibility for replacement and restitution of damaged or destroyed items or features by work of this contract at no expense to the Owner.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: Excavated material, graded free of roots, rocks larger than one inch; subsoil, debris and large weeds.

B. Subsoil: Excavated material, graded free of soil lumps larger than 6 inches, rocks larger than 4 inches and debris.

PART 3 EXECUTION

3.01 PREPARATION

A. Identify required lines, levels, contours and datum.

B. Identify known below grade utilities. Stake and flag locations.

C. Identify and flag above grade utilities.

D. Maintain and protect existing utilities remaining which pass through work area.

E. Notify utility company of work.

3.02 TOPSOIL EXCAVATION

A. Excavate topsoil from areas to be further excavated, relandscaped, or regraded and stockpile in area designated on site.

B. Stockpile or dispose of topsoil. Cover stockpiles to protect from erosion as described in the soil erosion and sediment control drawings.

3.03 SUBSOIL EXCAVATION

A. Excavate subsoil from areas to be relandscaped or regraded, marked areas and stockpile on site.

B. When excavation through roots within the “drip-line” of a tree is necessary, perform work by hand and cut roots with a sharp ax.

3.04 TOLERANCES

A. Top Surface of Subgrade: Plus or minus one inch.

END OF SECTION 31 22 13

SECTION 31 23 16

EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Excavation for building foundations.

B. Excavation for slabs-on-grade, paving, landscaping and utilities.

C. Excavation for site structures, piping, and lagoon construction.

l.02 FIELD MEASUREMENTS

A. Verify that survey benchmark and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

3.01 PREPARATION

A. Identify required lines, levels, contours and datum.

3.02 EXCAVATION

A. Underpin adjacent structures which may be damaged by excavation work, including utilities and pipe chases.

B. Excavate subsoil required to accommodate pipes, building foundations, slabs-on-grade, paving and site structures as shown on the Drawings.

C. Comply with all Federal, State and local codes, permits and regulations.

D. Excavation cut not to interfere with normal 45 degrees bearing splay of foundations or any other adjacent structures or utilities.

E. Grade top perimeter of excavation to prevent surface water from draining into excavation.

F. Hand trim excavation. Remove loose matter.

G. Remove lumped subsoil, boulders and rock up to 1/3 cu yd measured by volume.

H. Notify Engineer of unexpected subsurface conditions or utility damage.

I. Correct unauthorized excavation at no extra cost to Owner.

J. Correct areas over-excavated by error.

K. Stockpile suitable excavated material in area designated on-site for future use in project.

L. Excavations for structures shall be kept dewatered by such methods as the Contractor deems necessary. Where pumping is required, a sufficient number of pumps of adequate size shall be employed to keep the excavations dry and free of water at all times during excavation, and until the foundation work is completed. Sumps shall be constructed where

necessary. Water removed from excavations shall be disposed of in such a manner as to not cause injury to public health, private property, street surfaces, embankments or to any portion of the work completed or in progress.

M. Support excavations with sheathing, shoring and bracing or with a "trench box" as required to comply with Federal and State laws and codes.

N. Install adequate excavation supports to prevent ground movement or settlement to adjacent structures, pipelines or utilities. Damage due to settlement because of failure to provide support or through fault of the Contractor in any other manner, shall be repaired at the Contractor's expense.

O. Withdraw excavation supports when work is complete.

3.03 FIELD QUALITY CONTROL

A. Provide for visual inspection of bearing surfaces.

3.04 PROTECTION

A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.

B. Protect bottom of excavations and soil adjacent to and beneath foundation, from freezing.

END OF SECTION 31 23 16

SECTION 31 23 16.13

TRENCHING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Excavation of trenches for utilities and pipes.

B. Compacted bedding.

C. Backfilling, compaction, and testing.

1.02 REFERENCES

A. ASTM D698 – "Test Methods for Laboratory Compaction Characteristics of Soils Using Standard Effort." (Standard Proctor).

B. ASTM D1556 – "Test Method for Density of Soil in Place by the Sand-Cone Method."

C. ASTM D1557 – "Test Methods for Laboratory Compaction Characteristics of Soils Using Modified Effort." (Modified Proctor).

D. ASTM D2922- "Test Methods for Density of Soil and Soil aggregate in place by Nuclear Methods."

1.03 SUBMITTALS

A. Submit product data, test results, and certificates under the provisions of Section of 01 33 00 Submittal Procedures.

B. Test results: Submit testing agency's soil report including evaluation of soil characteristics and moisture curves for applicable backfill. Submit compaction test results on all backfill materials.

C. Certificates: Submit weight slips and certification confirming conformance of all borrow and aggregate materials to specifications.

D. Product Data: If requested by Engineer, submit product data indicating grading and quality requirements for aggregates.

1.04 SCHEDULING AND COORDINATION

A. Schedule Work under the provisions of Section 01 32 16 Construction Progress Schedule.

B. Coordinate the delivery of materials and installation of the Work of this Section with the Work of other Sections.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with Section 01 45 00 Quality Control.

B. Materials and installation shall conform to DelDOT specifications and quality control requirements.

C. Inspection and testing shall be performed in accordance with Section 01 45 00 Quality Control.

D. An independent testing agency, approved by the Owner, shall perform on-site field testing and inspection during trench backfill.

E. The testing agency shall submit written compaction test reports which demonstrate that the backfill complies with the drawings and specifications.

1.06 FIELD MEASUREMENTS

A. Verify the survey benchmark and intended elevations for the work are as shown on Project Drawings.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

A. Trench Fill Materials shall be DelDOT Type C borrow material.

2.02 BED MATERIALS

A. AASHTO #57.

2.03 COVER MATERIALS

A. Topsoil: In accordance with Section 32 90 00 Planting.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify fill material to be used is acceptable.

B. Verify that site conditions are ready to receive work of this section. Notify Engineer of any conflicts or site conditions which are not acceptable.

C. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

A. Identify required lines, levels, contours and datum.

B. Maintain and protect remaining or existing utilities and piping which pass through work area.

C. Special care shall be taken to avoid damage to trees and their root system. Machine excavation shall not be used when, in the opinion of the ENGINEER, it would endanger the tree or when prohibited by local ordinances. In general, where the line of trench falls within the limits of the limb spread, headers, pruning by professionals or tying back the limbs are required to protect the tree. The operation of all equipment, particularly when employing booms, the storage of materials, and the disposition of excavation shall be conducted in a manner which will not injure trees, trunks, branches or their roots unless such trees are designated for removal.

D. Unsupported open cut excavation for mains will not be permitted where trenching may cause danger to life, unnecessary damage to street pavement, trees, structures, poles, utilities, or other private or public property. During the progress of the work, whenever and wherever it is necessary, the CONTRACTOR shall, at his expense, support the sides of the excavation by adequate and suitable sheeting, shoring, bracing or other approved means. Such trench support materials and equipment shall be maintained and remain in

place until backfilling operations have progressed to the point where the supports may be withdrawn without endangering property.

E. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with fill material and compact to density greater than or equal to requirements for subsequent backfill material.

3.03 EXCAVATION

A. Excavate subsoil required for piping.

B. Cut trenches sufficiently wide to enable installation of utilities and allow inspection.

C. Excavation shall not interfere with normal 45 degree bearing splay of foundations.

D. Hand trim excavation. Remove loose matter.

E. Remove lumped subsoil, boulders, and rock up to 1/3 cubic yard, measured by volume.

F. Correct unauthorized excavation at no cost to Owner.

G. Correct areas over-excavated by error.

H. All excavations must be kept free of water below the subgrade of the work while work is in progress. Water removed from excavations shall be disposed of in such a manner as to not cause injury to public health, private property, street surfaces, embankments or any portion of the work completed or in progress.

I. Saw cut any paving prior to trench excavation.

3.04 BEDDING

A. Support pipe and conduit during placement and compaction of bedding fill.

3.05 BACKFILLING

A. Backfill trenches to contours and elevations with unfrozen materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

C. Fill: Place and compact material in continuous layers. Each layer to be a minimum of 8 inches and a maximum of 12 inches, except for the first lift over the pipe.

D. Employ a placement method that does not disturb structures, utilities, etc.

E. Maintain optimum moisture control of backfill materials to attain required compaction density of 95% Standard Proctor (ANSI/ASTM D698) unless otherwise noted. Engineer reserves right to require other testing methods if appropriate for backfill materials.

F. Contractor is responsible to remove surplus backfill materials from site.

G. Leave fill material stockpile areas completely free of excess fill materials.

3.06 TOLERANCES

A. Top surface of backfilling: Plus or minus one inch from required elevations.

3.07 FIELD QUALITY CONTROL

A. Field testing will be performed under provisions of Section 01 45 00.

B. Frequency of tests for pipe trenching within Right-of-Way: Provide a minimum of one test for each lift, one test for every 50 linear feet, and/or as directed by the Engineer. Independent Testing Agency shall be present at all times during pipe installation within any Right-of-Way. Engineer may call for additional compaction tests on any backfilled material, as necessary to show the Work meets the specified requirements.

C. Frequency of tests for pipe or utility trenches outside of Right-of-Way: For trenches in paved areas, access roads, under slabs, or other areas where settlement could create problems, perform a minimum of one test for every 50' of pipe or one test for each trench, whichever results in the greatest number of tests. Engineer may call for additional compaction tests on any backfilled material, as necessary to show the Work meets the specified requirements.

D. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to the Owner.

3.08 PROTECTION OF FINISHED WORK

A. Protect finished work.

END OF SECTION 31 23 16.13

SECTION 31 23 23.13

BACKFILLING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Building perimeter, trench, and site structure backfilling to subgrade elevations.

B. Site filling.

C. Fill under slabs-on-grade and paving.

D. Consolidation and compaction.

E. Fill for over-excavation.

1.02 REFERENCES

A. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 kg) Rammer and 12 inch (304.8 mm) Drop. (Standard Proctor).

B. ASTM D 422: Standard Test Method for Particle-Size Analysis of Soils.

C. ASTM D 2216: Standard Test Method for Laboratory Determination of Moisture Content of Soil and Rock by Mass.

D. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.

E. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 kg) Rammer and 18 inch (457 mm) Drop. (Modified Proctor).

F. ANSI/ASTM D2922 - Test Methods for Density of Soil and Soil Aggregate in place by Nuclear Methods.

G. AASHTO M43 - Standard Specification for Standard Sizes of Coarse Aggregate for Highway Construction.

H. ASTM D 4253/4254: Standard Test Methods for Maximum and Minimum Index Density and Unit Weight of Soils Using a Vibratory Table and Calculation of Relative Density.

I. ASTM D 4318: Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

J. ASTM D 3017: Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. Crusher Run Stone
B. Limestone Gravel meeting AASHTO #57 requirements as specified in AASHTO M43.
C. DelDOT Type C (backfill).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify fill materials to be reused are acceptable.

B. Verify foundation perimeter drainage installation has been inspected.

C. Verify underground tanks are anchored to their own foundation to avoid floatation after backfilling. (if applicable)

3.02 PREPARATION

A. Generally, compact subgrade to density requirements for subsequent backfill materials.

B. Cut out soft areas of subgrade not capable of in situ compaction. Backfill with suitable Fill Materials and compact to density equal to or greater than requirements for subsequent backfill materials.

C. Prior to placement of aggregate base course material at paved areas, compact subsoil to 95 percent of its maximum dry density in accordance with ANSI/ASTM D698 unless otherwise specified (DelDOT).

3.03 BACKFILLING

A. Backfill areas to contours and elevations with unfrozen materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

C. Employ a placement method that does not disturb or damage foundation perimeter drainage, foundation dampproofing, protective covers or utilities in trenches.

D. Maintain optimum moisture content of backfill materials to attain compaction density of 95% Standard Proctor (AANSI/ASTM D698). The moisture content shall be within +/- 2% of the optimal moisture for the material as indicated by the proctor test.

E. Backfill against supported structures or utilities.

F. Backfill simultaneously on each side of unsupported structures or utilities.

G. Slope grade away from structures minimum 2 inches in 10 ft., unless noted otherwise.

H. Make grade changes gradual. Blend slope into level areas.

I. Contractor is responsible to remove surplus backfill materials from site.

J. Leave fill material stockpile areas completely free of excess fill materials.

K. Place and compact material in 8 inch loose lifts unless otherwise specified.

3.04 TOLERANCES

A. Top Surface of Backfilling: Plus or minus one inch from required elevations.

3.05 FIELD QUALITY CONTROL

A. Field testing will be performed under provisions of Section 01 45 00.

B. Compaction testing will be performed in accordance with ANSI/ASTM D1556, ANSI/ASTM D2992, ANSI/ASTM D698.

C. Frequency of Test: Provide test on every lift at 100 foot intervals for trenches and every 10 cubic yards of placed material elsewhere.

D. Engineer may call for compaction tests on any backfilled material. If the results show the work does not meet specified requirements, the test shall be at the Contractor's expense and the cost deducted from payments. Owner shall bear expense of tests which proved specified work.

3.06 PROTECTION OF FINISHED WORK

A. Protect finished Work.

END OF SECTION 31 23 23.13

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SECTION 32 12 16

ASPHALT PAVING

PART 1 GENERAL

1.01 WORK INCLUDES

A. The Contractor shall install hot-mix, hot laid asphaltic concrete pavement and base courses in accordance with details provided on the Drawings and specifications.

B. Work shall include all labor, materials and equipment necessary to perform all paving and surfacing where shown on the contract drawings. The type of material, thickness and typical sections shall be as shown on the Contract Drawings.

C. Paving associated with manhole frame and cover replacements, test pits, manhole and pipe abandonment, spot repairs, cleanout installations, patching, etc. is incidental to those pay individual items.

1.02 QUALITY ASSURANCE

A. Perform work in accordance with Section 01 45 00 Quality Control.

B. Specifications: Delaware Department of Transportation (DELDOT) Specifications for Road and Bridge Construction (2026), latest edition and City of Dover Specifications, Standards, & Procedures for Public Works.

C. Source Quality Control: Maintain quality in products by using those of a qualified bituminous concrete producer having qualified plant operating personnel.

D. Experience: The bituminous concrete producer shall be DELDOT approved and shall be a bulk producer regularly engaged in production of hot-mixed, hot-laid bituminous concrete conforming to the standards referenced herein.

E. Workmen Qualifications: Provide workmen thoroughly trained and experienced in the skills required who understands the design and is completely familiar with the application of stone base and bituminous concrete paving work.

1.03 REFERENCE STANDARDS

A. Delaware Department of Transportation (DELDOT) Specifications for Road and Bridge Construction (2026), latest edition.

B. City of Dover Specifications, Standards & Procedures for Public Works Construction, latest edition.

1.04 JOB CONDITIONS

A. Weather Limitations: Apply tack coats only when ambient temperature is above 40^{o} F and rising, and when temperature has not been below 35^{o} F for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Construct asphaltic concrete surface course (wearing course) only when atmospheric temperature is above 40^{o} F and when base is dry. Binder course may be placed when air temperature is above 35^{o} F and rising.

C. Grade Control: Establish and maintain required lines and elevations.

1.05 SUBMITTALS

A. Submit work items for review in accordance with Section 01 33 00 Submittal Procedures.

B. Mix designs for bituminous concrete shall be submitted in writing by the Contractor sufficiently in advance of paving operations to allow for review approval. The design information shall include the following:

1. The use of which the material is proposed.
2. The designation, source and anticipated gradation of each of the component aggregates.
3. The estimated percentage of each aggregate required to yield the desired blend.
4. The resulting percentage passing each sieve size stipulated by the appropriate band.
5. The source of the asphalt material to be used.

C. Delivery Tickets: Submit for each placed on the project.

PART 2 PRODUCTS

2.01 MATERIALS

A. The asphalt for the plant mix shall comply with Delaware Department of Transportation (DELDOT) Specifications for Road and Bridge Construction (2026), latest edition. The asphalt material shall meet the requirements of Division 1000. A certificate of compliance will be acceptable.

B. The mineral aggregate for asphalt plant mix shall consist of coarse aggregate and fine aggregate. The course aggregate shall be sound, angular crushed stone, crushed gravel or crushed slag. Uncrushed coarse aggregate may be used in base course mixtures if the mixture meets all the design criteria. The fine aggregate shall be well graded, moderately sharp to sharp sands.

C. The mineral aggregate and asphalt shall be combined in a mixing plant to meet the gradations for asphalt concrete base and surface, as specified by the Delaware Department of Transportation.

2.02 PAVEMENT MIXES

A. Composition of Mixtures: Binder and wearing course mixture composition shall conform to the requirements of the above referenced specifications and the following.

1. The approved job-mix formula shall lie within the specification limits and be suitable for the layer thickness and other conditions prevailing. It shall not be changed after work has started without the approval of the Engineer.

PART 3 EXECUTION

3.01 GENERAL

A. Construction requiring the removal and replacement of roads, driveways, parking areas, curb and gutter, walks and paved areas, and new paving shall be as required herein and shall meet the following jurisdictional requirements.

1. Delaware Department of Transportation (DELDOT) Specifications for Road and Bridge Construction (2026), latest edition.
2. City of Dover Specifications, Standards & Procedures for Public Works Construction, latest edition.

3.02 REMOVAL OF EXISTING PAVEMENT

A. Cut existing pavement in advance of excavating to neat lines.

B. Saw cut existing pavement to the full depth of paving. Remove transfer devices where they exist.

C. For walkways and curb and gutter provide temporary facilities as directed by the Engineer.

3.03 USE OF STEEL PLATING

A. Whenever steel plating is required or used during construction within a paved roadway, the following requirements shall apply:

1. Notify Engineer at least 48 hours in advance of placing steel plates in roadway. Unless otherwise approved by the Engineer, steel plates shall be removed in not more than seven days.
2. Provide steel plate warning signs to crossing vehicular traffic.
3. Steel plates shall be at least one-inch-thick and large enough to allow a minimum of one foot of bearing on all sides of the excavation. Pin plates to prevent movement.
4. Provide cold bituminous mix on all edges of the steel plate tapered from the height of the steel plate extending a minimum of one foot to the existing road surface.
5. During months of the year when snowfall may be expected, mark steel plates with a two-inch square stake painted International Orange and extending at least four feet above the ground, placed adjacent to the edge of the roadway.
6. If an emergency condition occurs due to the excavation and plate placement that the Owner's forces must correct, the Contractor will be charged for cost of the corrective measures required.

3.04 PREPARATION AND PLACEMENT OF PAVEMENT

A. All debris, vegetation, or other perishable materials shall be removed from the jobsite, except for trees and shrubs designated for preservation. The site to be paved shall be graded to the required section and all excess material removed from the location of the work. Material in soft spots shall be removed to the depth required to provide a firm foundation and shall be replaced with Type B Backfill material. The entire subgrade area shall be thoroughly compacted to minimum density of 95 percent of the maximum dry density as determined by the Standard Proctor. The surface of the subgrade after compaction shall be hard, uniform, smooth, and true to grade cross-section.

B. Excavate, replace or adjust as required existing features to assure a smooth transition to proposed paving including but not limited to water valve boxes, manhole frames and covers, etc.

C. A tack coat shall be applied on the subgrade and base course. The rate of application of the tack coat shall comply with Delaware Department of Transportation (DELDOT) Specifications for Road and Bridge Construction (2026), latest edition.

D. The Contractor shall provide the necessary equipment, materials, and labor to complete the job acceptable to the owner.

E. The contractor shall furnish for testing and analysis representative samples to the designated testing laboratory. All materials and applications shall comply with DELDOT Standards. The contractor shall provide certification that the material furnished is in accordance with the contract. Sampling and testing shall be in accordance with the latest revisions of the American Association of State Highway and Transportation Officials (ASSHTO) or the American Society for Testing Materials (ASTM). A certificate of compliance will be acceptable.

F. The surface of the completed work when tested with a 10'-0" straight edge shall not have irregularities in excess of 3/16 inch.

G. For all areas of more than 200 square yards, asphalt base and surface courses shall be spread and struck off with a paving machine. Any irregularities in the surface of the pavement course shall be corrected directly behind the paving machine. Excess material forming high spots shall be removed with a shovel or a lute. Indented areas shall be filled with hot mix and smoothed with a lute or the edge of a shovel being pulled over the surface. Casting of mix over such areas shall not be permitted.

H. If it is impractical to use a paving machine or spread box in areas of less than 200 square yards, asphalt base and surface courses maybe spread and finished by hand. Wood or steel forms rigidly supported to assure correct grade and cross section may be used. Placing by hand shall be performed carefully to avoid segregation of the mix. Broad casting of material shall not be permitted. Any lumps that do not break down readily shall be removed.

I. Rolling shall start as soon as hot mix material can be compacted without displacement. Rolling shall continue until thoroughly compacted and all roller marks have disappeared.

J. In areas too small for the roller, a vibrating plate compactor or hand tamper shall be used to achieve thorough compaction.

K. The contractor shall guarantee in writing the satisfactory performance of the completed pavement for a period of five (5) years.

3.05 FIELD QUALITY CONTROL

A. Thickness: In-place compacted thickness will not be acceptable if exceeding allowable variation from required thickness:

1. Base Course : 1/2", plus or minus.
2. Surface Course : 1/4", plus or minus.

B. Surface Smoothness: Test finished surface of each asphaltic concrete course for smoothness, using 10-foot straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding following tolerances for smoothness:

1. Base Course Surfaces : 1/4".
2. Wearing Course Surface : 3/16".

3.06 PROTECTION

A. Protect from damage and vehicular traffic until paving has cooled and attained its maximum degree of hardness.

END OF SECTION 32 12 16

SECTION 32 90 00

PLANTING

PART 1 GENERAL

1.01 WORK INCLUDED

A. All disturbed areas shall be restored in accordance with this section.

B. Preparation of subsoil.

C. Placing topsoil.

D. Fertilizing.

E. Seeding.

F. Mulching.

1.02 DEFINITIONS

A. Noxious Weeds: Includes Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwork, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.03 REGULATORY REQUIREMENTS

A. Conform to requirements of the latest edition of the Delaware Department of Transportation (DELDOT) State Highway Administration Standard Specifications for Construction and Materials and applicable permit requirements.

B. Comply with regulatory agencies for fertilizer and herbicide composition.

C. Comply with requirements of DNREC Division of Soil and Water Conservation, Sediment and Stormwater Section.

1.04 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.05 SCHEDULING AND COORDINATION

A. Coordinate Work of this Section with Work of other Sections.

B. Schedule site restoration operations to minimize the time disturbed areas will be left exposed to erosion.

1.06 SUBMITTALS

A. Submit under provisions of Section 01 33 00 Submittal Procedures.

B. Product Data: Provide data on all seed mixes with certified statement of weight, composition, mixture, percentage of purity, and germination as verification that the proper materials and volumes have been used. Also provide data on all soil amendment materials, herbicides, or other chemicals to be used for Work of this Section.

1.07 DELIVERY, STORAGE AND HANDLING (IF APPLICABLE)

A. Deliver, store and protect Products to site under provisions of Section 01 60 00 Product Requirements.

B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

C. Deliver fertilizer in original, unopened waterproof bags showing weight, chemical analysis, and name of the manufacturer.

PART 2 PRODUCTS

2.01 SEED MIXTURE (IF APPLICABLE)

A. Permanent grass seed mixture shall be in accordance with Sediment and Erosion Control Notes on the Drawings.

B. The date of the last germination of the seed shall be within a period of six months prior to commencement of planting operations. Seed shall be from same of previous year's crop; each variety of seed shall have a purity of not less than 85%, a percentage of germination not less than 90%, shall have a weed content of not more than 1% and contain no noxious weeds.

2.02 TOPSOIL

A. Excavated material from site and free of roots, rocks larger than one inch, subsoil, debris, and weeds.

2.03 MULCHING AND BINDER

A. Dry oat or wheat straw, free from weeds and foreign matter detrimental to plant life. Hay is not acceptable.

B. Synthetic binder for mulch shall be non-asphaltic emulsion, Mulch Mate Super Tack or approved equal.

2.04 SOIL SUPPLEMENTS

A. Add limestone and fertilizer in accordance with Erosion and Sediment Control Notes on the Drawings.

2.05 WATER

A. Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that subgrade is ready to receive the work of this Section.

3.02 PREPARATION OF SUBSOIL

A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

B. Remove foreign materials, weeds, and undesirable plants and their roots. Remove contaminated subsoil.

C. Prepare subgrade to obtain satisfactory bond between subsoil and topsoil by scarifying subsoil to a depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil. This operation shall not be performed when subgrade is frozen, excessively wet or dry. Scarify immediately prior to topsoil placement.

3.03 PLACING TOPSOIL

A. Spread topsoil to a minimum depth of 4 inches over area to be seeded. Rake until smooth.

B. Place topsoil during dry weather and on dry, unfrozen subgrade.

C. Remove vegetable matter and foreign non-organic material while spreading.

D. Grade to eliminate rough, low, or soft areas, and to ensure positive drainage.

3.04 SOIL SUPPLEMENTS

A. Apply limestone and fertilizer according to manufacturer's instructions, and E&S Drawings.

B. Apply after smooth raking of topsoil and prior to roller compaction.

C. Do not apply lime or fertilizer at same time, or with same machine as will be used to apply seed.

D. Mix thoroughly into upper 2 inches of topsoil.

E. Lightly water to aid the dissipation of fertilizer.

F. Any irregularities or depressions caused by liming or fertilizing operations shall be corrected prior to seeding.

3.05 SEEDING (IF APPLICABLE)

A. Apply seed at a rate as shown on drawing by hydroseeding or mechanical spreading.

B. If using mechanical spreading apply evenly in two intersecting directions. Rake in lightly.

C. Do not seed area in excess of that which can be mulched on same day.

D. Do not sow immediately following rain, when ground is too dry, or during windy periods.

E. Roll seeded area with roller not exceeding 112 lbs.

3.06 MULCHING

A. Immediately following seeding and compacting, apply mulch at 1-1/2 tons per acre for an approximate thickness of 2 inches.

B. Apply mulch binder at a rate recommended by manufacturer immediately after placement of mulch.

C. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

3.07 MAINTENANCE

A. Areas shall be mowed not less than once each 10 days to help prevent weeds from establishing.

B. General restored areas shall be cut to a height no less than 2 1/2”.

C. Neatly trim edges and hand clip where necessary.

D. Control growth of weeds. If necessary, apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.

E. Reseed any areas which do not show even stand.

F. Contractor shall water restored areas until Final Completion.

3.08 GUARANTEE PERIOD

A. All restored areas shall be guaranteed by the Contractor for not less than one full year from the date of Final Completion.

B. During first planting season after Final Completion, any restored areas not demonstrating satisfactory stands, as determined by the Engineer, shall be renovated, reseeded, and maintained by Contractor until satisfactory stands are attained at all restored areas.

C. A satisfactory stand shall be defined as an even stand of grass, after cutting, at least 2 1/2" tall with at least 85% germination.

END OF SECTION 32 90 00

SECTION 33 01 30.11

TELEVISION INSPECTION OF SEWERS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Provide all labor, materials, tools, equipment, and incidentals required to perform television (TV) inspection of the storm sewer mains.

1.02 DEFINITIONS

A. Post-Construction Inspection: TV inspection of reinforced concrete pipe.

1.03 PERFORMANCE REQUIREMENTS

A. Inspection shall be performed by a NASSCO *Pipeline Assessment Certification Program* (PACP) certified operator and shall meet the coding and reporting standards and guidelines as set by PACP. These same standards shall also be used for lateral inspections regardless of whether conducted using cleanout launched or mainline launched lateral camera. All report annotations, pipe conditions and pipe defects shall be identified properly using PACP codes as defined by PACP, and severity ratings shall be calculated according to PACP.

B. Quality of inspection recording shall be acceptable to Engineer when viewed on a standard computer monitor.

1.04 SUBMITTALS

A. Post-Construction Inspection: Submit 2 copies on DVD of Digital Inspection Recordings.

B. Copies of PACP certificate for inspectors completing the work.

PART 2 - PRODUCTS

2.01 TELEVISION EQUIPMENT

A. Closed Circuit TV Equipment: Select and use closed-circuit television equipment that will produce a color recording.

B. Pipe Inspection Camera: Produce video recording using a pan-and-tilt, radial viewing, pipe inspection camera that pans ± 275 degrees and rotates 360 degrees. Use a camera with an accurate footage counter that displays on the TV monitor the exact distance of the camera from the centerline of the starting manhole. Use a camera with camera height adjustment so that the camera lens is always centered at one-half the inside diameter, or

higher, in the pipe being televised. Provide a lighting system that allows the features and condition of the pipe to be clearly seen. A reflector in front of the camera may be required to enhance lighting in large diameter pipe. Lighting shall not cause shadows within the field of view of the camera, either when forward viewing or when using pan/tilt. The camera, television monitor and other components of the video system shall be capable of producing a minimum 500-line resolution colored video picture. Picture quality and definition shall be to the satisfaction of the Engineer.

C. Recording: All recordings are to be in digital format.

PART 3 - EXECUTION

3.01 TELE VISUAL INSPECTION

A. Televise the storm pipes to document the condition of the pipe. The contractor must notify the Engineer 48 hours in advance of any TV inspection so that the Engineer may observe inspection operations.

B. Mainline inspections shall be from the center of the upstream manhole to the center of the downstream manhole. Distances along the pipe should be measured from the center of the upstream manhole. Measurements shall be accurate to two-tenths of a foot over the entire length of the sewer line section. Prior to recording the location of defects, construction features, and service connections, slack in the cable of the television inspection camera shall be taken up to ensure metering device is designating proper footage. To ensure accuracy measurement meters shall be checked daily by use of a walking meter, roll-a-tape, or other suitable device.

C. The camera must be centered in the middle of the pipe.

D. The camera shall be moved through the line (in the downstream direction whenever possible) at a uniform rate not to exceed 30 feet per minute.

E. Pause at every joint for several seconds. When infiltration or other defects are evident, use pan and tilt to document pipe condition. Stop when necessary to ensure proper documentation of the sewer's condition.

F. Capture color still shots of video recordings for all defects encountered.

G. Use manual winches, power winches, TV cable, and powered rewinds or other devices that do not obstruct the camera view or interfere with proper documentation of the sewer conditions to move the camera through the sewer line.

H. TV inspection recordings shall be continuous for each pipe segment.

I. Contractor is responsible for adjusting light levels, cleaning fouled or fogged lens, and allowing vapor to dissipate from camera lights in order to produce acceptable recordings. Any TV inspection recordings that do not meet the requirements of this Specification shall be re televised at no additional cost to the owner.

3.02 FLOW CONTROL

A. During TV inspection adequately control the flow in the section so that the depth of flow is 10% or less in the pipe being televised.

B. Contractor is responsible for all damages to Contractor owned and operated equipment, Owner facilities, and privately owned facilities caused by malfunction plugs, pumps or other Contractor owned or operated equipment.

C. If the camera encounters a submerged condition, or where the wastewater flow depth exceeds the maximum allowable, reduce the flow depth to an acceptable level, or by pulling a camera with swab, high-velocity jet nozzle or other acceptable dewatering device. Recordings made while floating the camera are not acceptable unless approved by Engineer.

3.03 OBSTRUCTIONS

A. If during TV inspection of a pipe segment the camera is unable to pass an obstruction, televise the pipe segment from the opposite direction in order to obtain a complete recording.

3.04 INSPECTION REPORTS

A. Written Inspection Reports

1. Provide printed location records to clearly identify the location of each defect, or lateral connection, in relation to adjacent manholes, using a standard stationing system zeroed on the upstream manhole. Record all information requested using proper NASSCO PACP defect codes. The reports shall include at least the minimum amount of information required by PACP, including required PACP header information. Color still shot images of all defects encountered shall be included with each pipe segment.

B. Electronic Inspection Reports

1. Provide a PACP- certified database listing all PACP required data fields for each pipe segment.

C. Inspection Recordings

1. Recording shall be of a quality sufficient for the Engineer to evaluate the condition of the sewer main lines and lateral pipes, locate the sewer service connections, and verify cleaning and joint testing. If Engineer determines that the quality is not sufficient, Contractor shall re-televise the sewer segment and provide a new recording and report at no additional compensation. Camera distortions,

inadequate lighting, dirty lens, or blurred/hazy picture will be cause for rejection. Payment for televised inspection will not be made until Engineer approves the recordings and reports.

2. Each pipe segment must be its own electronic file.

3. Contractor shall maintain a master copy of all recordings and Inspection Reports submitted for two years after delivery of reports and recordings.

4. Label each DVD with the following information:

   a. File Number.
   b. CONTRACTOR's Name.
   c. Project Name.
   d. Contract Number.
   e. Inspection Type: Post Cleaning, Repair.
   f. Tape Number.
   g. Date Televised.
   h. Pipe Segments.

END OF SECTION 33 01 30.11

SECTION 33 41 00

STORM UTILITY DRAINAGE PIPING

PART 1 GENERAL

1.01 WORK INCLUDED

A. The contractor shall install reinforced concrete pipe in accordance with the Contract Documents.

B. The contractor shall install box manholes and drainage inlets in accordance with the Contract Documents.

C. The contractor shall complete video inspection of all new reinforced concrete pipe.

1.02 QUALITY ASSURANCE

A. Perform work in accordance with Section 01 45 00 Quality Control.

B. Specifications: Delaware Department of Transportation (DelDOT) Specifications for Road and Bridge Construction (2026), latest edition and City of Dover Specifications, Standards, & Procedures for Public Works.

C. Workmen Qualifications: Provide workmen thoroughly trained and experienced in the skills required who understands the design and is completely familiar with the pipe, manhole and inlet installation.

1.03 SCHEDULING AND COORDINATION

A. Coordinate Work of this Section with Work of other Sections.

B. Schedule site restoration operations to minimize the time disturbed areas will be left exposed to erosion.

1.04 SUBMITTALS

A. Submit under provisions of Section 01 33 00 Submittal Procedures.

B. Shop drawings for all box manholes and drainage inlets.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver, store and protect Products to site under provisions of Section 01 60 00 Product Requirements.

PART 2 PRODUCTS

2.01 REINFORCED CONCRETE PIPE

A. The reinforced concrete pipe shall comply with the Delaware Department of Transportation (DelDOT) Specifications for Road and Bridge Construction (2026), latest edition and City of Dover Specifications, Standards, & Procedures for Public Works.

2.02 BOX MAHNOLES AND DRAINAGE INLETS

A. The reinforced concrete pipe shall comply with the Delaware Department of Transportation (DelDOT) Specifications for Road and Bridge Construction (2021), latest edition and City of Dover Specifications, Standards, & Procedures for Public Works.

PART 3 EXECUTION

3.01 GENERAL

A. All workmanship shall comply with the Delaware Department of Transportation (DelDOT) Specifications for Road and Bridge Construction (2026), latest edition and City of Dover Specifications, Standards, & Procedures for Public Works. .

3.02 REINFORCED CONCRETE PIPE INSTALLATION

A. Excavation, pipe trenching and backfilling shall be completed per Division 31 Earthwork.

B. Pipe shall be installed in accordance to the elevations and slopes shown on the drawings.

C. Video inspect all new sewer in accordance with Section 33 01 30.11

3.03 BOX MANHOLE AND DRAINAGE INLET INSTALLATION

A. Excavation and backfilling shall be completed per Division 31 Earthwork.

B. Manholes and drainage inlets shall be installed in accordance to the elevations shown on the drawings.

C. Grade Rings (no stacking) or sewer brick up to 12 inches is permitted to adjusted grates or frame and covers to final elevation.

END OF SECTION 33 41 00

APPENDIX A

1/27/2025

City of Dover

Standard Operating Procedures (SOPs) Manual

Contents

SOP SERIES 100. POLLUTION PREVENTION AT MAINTENANCE FACILITIES

Purpose: Stormwater pollution prevention procedures for City-owned maintenance facilities that operate under a General NPDES Permit.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOPs: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 110. GENERAL GOOD HOUSEKEEPING FOR FACILITY AND BUILDING MAINTENANCE

1. GENERAL MAINTENANCE
    a. Follow street sweeping directive
        i. Sweep City Warehouse parking lot monthly and after spills
    b. Regularly pick up trash in ALL areas
    c. Sweep floor regularly to avoid tracking pollutants outside
2. PROPER LABELING
    a. ALL drums must be labeled with contents and stored indoors
        i. EMPTY drums must be clearly labeled "EMPTY"
3. POLLUTION PREVENTION
    a. Utilize hydrocarbon absorbent booms if washing of maintenance bay is required
    b. Maintain stormwater system. Routinely change oil booms in catch basin inserts
    c. Keep potential pollutant materials from being exposed to stormwater
    d. Clean up spills as soon as possible to avoid spreading or tracking the spill

SOP 120. VEHICLE AND EQUIPMENT MAINTENANCE AND STORAGE

1. SCHEDULED MAINTENANCE
    a. Notify Fleet Shop when dropping off a vehicle for maintenance
        i. Notify Fleet Shop of any known leaks
2. GENERAL MAINTENANCE
    a. Conduct all maintenance activities indoors
    b. Perform vehicle maintenance per prescribed schedule to minimize leaks
3. POLLUTION PREVENTION
    a. Use drip pans and other containment devices to prevent spills while servicing a vehicle
        i. If vehicles stored outside have known leaks, use drip pans
    b. Transfer fluids from drip pans to the appropriate waste containers as the first step in cleaning after the work is complete

    c. Store chemicals and wastes indoors to minimize their potential to pollute stormwater
    d. Store containers on spill pallets/decks
4. SPILLS
    a. Use absorbent material to clean up spills immediately and dispose of material. Materials spilled inside are frequently tracked outside by vehicles and foot traffic.
    b. Treat vehicle leaks in parking lot with absorbents and dispose of properly

SOP 130. VEHICLE AND EQUIPMENT WASHING

1. VEHICLE AND EQUIPMENT WASHING
    a. Conduct vehicle and equipment washing only in designated wash bay
    b. Minimize use of soap
    c. If detergents are used, use biodegradable detergents

SOP 140. VEHICLE AND EQUIPMENT FUELING

1. FUEL TRANSFERS
    a. A City of Dover employee should be in attendance during fuel transfers from delivery contractor
2. POLLUTION PREVENTION
    a. A spill kit and/or absorbent material in a rain-proof container should be located near the fueling station and labeled
    b. Protect storm inlets (catch basins) if necessary
3. SPILLS
    a. Clean up any fuel spillage with absorbent
    b. Report leaks or spills as a result of fueling so that they can be recorded in the Stormwater Plan binder

SOP 150. OUTDOOR STORAGE

1. GENERAL MAINTENANCE
    a. Keep material stockpiles contained
2. DUMPSTERS
    a. All dumpsters and waste receptacles should have lids to keep rainwater out
    b. Never place liquid wastes into dumpsters or trash receptacles

SOP SERIES 200. CONTROL OF SOLIDS AND CONTAMINENTS FROM PAVED SURFACES

Purpose: To control total suspended solids (TSS) and roadway maintenance pollutant runoff from the City's paved surfaces through good housekeeping and pollution prevention measures including street sweeping, catch basin cleaning and stormwater system cleaning.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Contractors employed by the City with the possibility of discharging pollutants to the MS4 must also read these SOPs. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOPs: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 210. STREET SWEEPING

1. STREET SWEEPING
    a. Sweeping occurs weekly. ALL City streets must be swept at least 4 times per calendar year, per the City's MS4 Phase II Permit.
    b. Follow manufacturer's recommended procedures to obtain optimal debris removal. This includes sweeper speed, brush alignment and condition, and water usage.
2. SWEEPER WASTE
    a. Keep sweeper waste consolidated while awaiting disposal
    b. Track sweeper waste quantities
    c. Annually test material; Delaware Solid Waste Authority issues permit to dump at landfill

SOP 220. STORMWATER SYSTEM MAINTENANCE

1. EROSION & SEDIMENT CONTROL
    a. Use appropriate erosion & sediment control practices when performing repairs to the stormwater system
    b. Take sediment to designated location to dump material into drying bed
        i. When water evaporates, load sediment into dump truck and take to landfill
2. STORMWATER SYSTEM MAINTENANCE AND INTEGRITY
    a. Stormwater system should be inspected regularly for structural integrity and evidence of illicit discharges
    b. Use a vactor truck to vacuum flush water from catch basins and stormwater system piping. Never discharge flushing water to surface waters.
    c. Document inspections, cleanings, and repairs.
3. ILLICIT DISCHARGES
    a. Report any suspected illicit discharges to the Public Works Environmental Scientist

SOP 230. CONCRETE WORK

1. CONCRETE WORK
    a. When sawing concrete, use the minimum amount of water. Let the waste slurry dry and then sweep it up before leaving the location. A wet vacuum may also be used to pick up the waste immediately after cutting is complete. DO NOT ALLOW SLURRY TO REACH STORM DRAINS
    b. Unused concrete remaining in the truck shall be returned to the originating batch plant
    c. Washdown of machines and hand tools must be done in vehicle wash bay
        i. Contractors must set up a designated concrete washout. Concrete washed down the storm drain is an illicit discharge.

SOP 240. ROADWORK, RESURFACING, OR PAVING

1. BEFORE WORK
    a. Re-seal or pave only on dry days when no rain is expected. Cease all activities when rain threatens.
    b. Protect or block downstream storm inlets (within 25 feet) from debris from maintenance work (asphalt cap, chip sealing, concrete breaking, or saw cutting). Leave covers or berms in place until job is complete
    c. Use tarps to cover stockpiled materials

SOP SERIES 300. SNOW AND ICE PROGRAM

Purpose: Stormwater pollution prevention procedures for salt, sand or liquid deicer on roadways, and snow storage and disposal.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Contractors employed by the City with the possibility of discharging pollutants to the MS4 must also read these SOPs. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOPs: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 310. EMERGENCY PLAN

1. EMERGENCY PLAN
    a. Refer to *DOVER PUBLIC WORKS OPERATIONS MANUAL FOR SNOW REMOVAL* or information on responsibilities an assignments, emergency and critical high priority snow removal routes, and operational timelines.
    b. A printed or electronic copy of the manual is available in all facilities with responsible personnel.

SOP 320. SALT STORAGE

1. SALT STORAGE
    a. Store salt and salt/sand mixtures under roof/cover
    b. Store salt and salt/sand mixtures on impervious surfaces
    c. Salt must be kept from migrating outside of the building

SOP 330. LOADING

1. LOADING
    a. When loading, care should be taken to avoid spillage; clean-up if spill occurs
    b. Loading areas should be swept frequently to prevent salt build-up and runoff

SOP 340. CALIBRATION

1. CALIBRATION
    a. Annually calibrate spreaders to minimize salt usage

SOP 350. EMERGENCY SNOW DISPOSAL

1. EMERGENCY SNOW DISPOSAL
    a. Do not dispose of snow in rivers, lakes, or wetlands
    b. Disposal sites will be selected on an as needed basis after consulting with the City's Environmental Scientist and Public Works Director

2. STORAGE
    a. Select storage areas that do not drain to the MS4 or surface waters and where environmental impacts from spring melt are minimal

SOP 360. CLEANUP

2. CLEANUP
    a. Periodically sweep the loading area to reduce the amount of deicing material exposed to runoff
    b. Within 48-hours after a storm event, sweep the facility where salt was loaded/unloaded
    c. If sand is used in deicing operations, sweep up residual sand from streets when weather permits

SOP SERIES 400. FERTILIZER

Purpose: To protect stormwater by properly storing, handling, and applying fertilizers to City-owned vegetated properties. To follow manufacturer's specifications and applicable regulations to minimize or prevent the discharge of fertilizers into the City of Dover's watersheds.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Contractors employed by the City with the possibility of discharging pollutants to the MS4 must also read these SOPs. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOPs: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 410. FERTILIZER APPLICATION

1. FERTILIZING GRASS AREAS
    a. ALL grass areas including parks and grass strips along roadways shall NOT be fertilized
2. FERTILIZING HANGING BASKETS
    a. Supervisors and Technicians should be aware of the weather conditions before and after application to ensure fertilizer has adequate time to dry/soak in the soil before precipitation events.
    b. Fertilizers should only be applied by properly trained personnel.
    c. Fertilizing hanging baskets shall occur 2 times per year, with some flexibility at the discretion of the Director of the Parks and Recreation Department (Director).
    d. All instances of fertilizer application must be documented and made available to the Director and the Environmental Scientist in the Public Works Department (Environmental Scientist).

SOP 420. FERTILIZER STORAGE & SPILL RESPONSE

1. FERTILIZER STORAGE
    a. ALL fertilizer shall be stored in the Grounds Warehouse, located at Schutte Park. ALL fertilizer must be kept inside. Store in accordance with the manufacturer's specifications.
2. FERTILIZER SPILL RESPONSE
    a. ALL spills must be immediately swept up with a broom and dustpan. Fertilizer must be properly disposed of in waste containers, or, if still usable, in its' original container.

SOP SERIES 500. PESTICIDES AND HERBICIDES

Purpose: To protect stormwater by properly storing, handling, and applying pesticides and herbicides to City-owned vegetated properties. To follow manufacturer's specifications and applicable regulations to minimize or prevent the discharge of pesticides and herbicides into the City of Dover's watersheds.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Contractors employed by the City with the possibility of discharging pollutants to the MS4 must also read these SOPs. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOPs: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 510. USE AND APPLICATION OF PESTICIDES

1. CERTIFICATION
    a. Pesticides should only be applied by applicators certified by the Delaware Department of Agriculture (DDA)
    b. Certifications should be kept current by obtaining Continuing Education Credits in accordance with DDA's recertification guidelines.
2. PREPARATION
    a. Calibrate equipment regularly to ensure proper application and loading rates.
    b. Ensure that ALL pesticide application equipment is capable of an immediate shutoff in case of emergency.
    c. Always check weather conditions like wind and precipitation before application. Do not apply pesticides during heavy winds or during/before rain.
    d. Wear proper PPE according to the pesticide's label/MSDS sheet.
    e. Mix pesticides on impervious surfaces, NEVER on grass.
3. CLEANUP
    a. Do not hose down impervious areas after pesticide application to a storm drain or drainage ditch. Use spill pads or absorbent to clean up spills.
    b. Recycle rinsate from equipment cleaning back into product.

SOP 520. PESTICIDE STORAGE AND SPILL RESPONSE

1. STORAGE
    a. Store pesticides in high, dry locations in accordance with the manufacturer's specification.
    b. Store in cool, well-ventilated, and insulated areas to protect against temperature extremes.
    c. Store materials in an enclosed area, or in covered, impervious containment, such as a locked cabinet.
    d. Emergency eyewash stations and emergency drench showers should be located near the storage area.

e. An aggressive spill kit should be located near the storage area. An aggressive spill kit is equipped to handle acid spills.

2. SIGNAGE AND LABELING
    a. The door to the storage area should be locked have a weatherproof sign, posted in English and any other language used by field staff, that reads:

DANGER
PESTICIDE STORAGE AREA
ALL UNAUTHORIZED PERSON KEEP OUT
KEEP DOORS LOCKED WHEN NOT IN USE

    b. All pesticide containers should be properly labeled with their contents.
3. DISPOSAL
    a. Dispose of empty pesticide containers in accordance with all applicable regulations.

SOP SERIES 600. ILLICIT DISCHARGES

Purpose: To identify and address any illicit discharge during stormwater system inspections or otherwise reported illicit discharges impacting the stormwater system.

Scope: All City of Dover staff need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Contractors employed by the City with the possibility of discharging pollutants to the MS4 must also read these SOPs. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOP: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 610. GENERAL

1. GENERAL
    a. All City of Dover staff are responsible for preventing illicit discharges from their operations and notifying the proper authority if an illicit discharge is noticed outside of their operation
    b. Protect storm drains if a non-stormwater discharge has the potential to enter the MS4 while performing your job

SOP 620. NOTIFICATION

1. NON-EMERGENCIES
    a. Report all potential illicit discharges to the Public Works Environmental Scientist, if not available, report to the Public Works Stormwater Coordinator
        i. The Environmental Scientist will record the potential illicit discharge, document the MS4 violation, and contact DNREC if necessary.
2. EMERGENCIES
    a. Emergencies include events where illicit discharges are suspected of being injurious to public health or safety
        i. Emergencies include sewage main breaks
    b. In the case of an emergency, contact the Department of Natural Resources and Environmental Control (DNREC) at 800-662-8802

SOP 630. DISCHARGE IDENTIFIED

1. SANITARY SEWER OVERFLOWS (SSO)
    a. SSO SOP will be followed
2. DOCUMENTATION
    a. Take pictures at the scene and communicate all observations to the Environmental Scientist
3. CLEANUP
    a. Public Works staff will work to remove the source of the pollutant
    b. DNREC may be called to aid in cleanup

4. CORRECTIVE ACTIONS
    a. Code Enforcement may issue a Notice of Violation
    b. The Environmental Scientist will send an MS4 Violation

SOP 640. DISCHARGE NOT IDENTIFIED

1. RECORD
    a. Record as much information as you can at the scene. Observe flow for presence or odor, floatable materials, color of discharge, foam, or visible sheen. Take photographs.
2. INVESTIGATION
    a. The Public Works consultant will source track the discharge
    b. Public Works staff will work towards removing the source of the pollutant
    c. Code Enforcement may issue a Notice of Violation

SOP SERIES 700. CONSTRUCTION SITE STORMWATER MANAGEMENT

Purpose: Stormwater pollution prevention for new construction. To notify Public Works of discharges of sediment and waste from construction activity to the City's MS4.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Contractors employed by the City with the possibility of discharging pollutants to the MS4 must also read these SOPs. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOP: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 710. GENERAL

1. CERTIFICATION
    a. Under the Delaware Sediment and Stormwater Regulations, each active construction site must have a "responsible person," certified through the Contractor Training Program, to provide daily oversight throughout construction.
        i. Formerly known as the Blue Card Certification
        ii. Certification must be current
    b. All current Certified Construction Reviewers (CCRs) must maintain certification
2. NON-COMPLIANCE
    a. The Kent Conservation District (KCD) is delegated by DNREC to implement construction site stormwater runoff control.
    b. Public complaints should be reported to Public Works. They will then be relayed to the Environmental Scientist and Code Enforcement.
    c. If a site is non-compliant, KCD will be informed. KCD will inspect the site and issue a written CCR with a deadline for compliance. If the developer of the site is not compliant by the deadline, the City of Dover will then notify the developer of MS4 violations (see SOP 720. MS4 Violations). The City of Dover will work with KCD which can include withholding building permits and Certificates of Occupancy.

SOP 720. MS4 VIOLATIONS

1. REPORTING
    a. Report a discharge of sediment or waste from a construction site to the Public Works Environmental Scientist
    b. The Public Works Environmental Scientist will communicate with KCD
    c. If the developer does not become compliant with the Delaware Sediment and Stormwater Regulations by KCD's deadline, the City of Dover will take necessary actions as described in SOP 710. 2. NON-COMPLIANCE.

SOP SERIES 800. SPILL PREVENTION, RESPONSE, AND CLEANUP

Purpose: Stormwater pollution prevention procedures for spill prevention and cleanup at municipal facilities and roadways.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Contractors employed by the City with the possibility of discharging pollutants to the MS4 must also read these SOPs. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOP: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 810. EMERGENCY SPILL RESPONSE

1. EMERGENCY SPILL RESPONSE
    a. If there is imminent threat of fire or another life-threatening situation, call 911
    b. Identify the source of the leak or spill. Attempt to stop the flow of the pollutant, if practical without endangering personnel.
    c. Use sorbent materials to prevent the spill from reaching storm inlets
    d. If the substance is not known, do not try to clean it up without hazardous material professionals.
    e. Report the spill to the Public Works Environmental Scientist. They will determine if you need a spill response contractor.
    f. See spill flowchart (Appendix B) and follow the 3 Cs of Spill Response

SOP 820. SPILL PREVENTION

1. LIQUID OR HAZARDOUS MATERIALS
    a. Liquid or hazardous materials should never be handled, used, stored, and transferred indoors or under cover
    b. Deliveries of bulk liquids should be supervised
    c. Store containers on spill decks
    d. Use absorbent pads on tops of drums that dispense fluids
    e. Protect the storm drain inlets in the event of a spill
2. VEHICLES
    a. Perform vehicle maintenance in a covered facility; use drip pans and oil absorbents to clean spills
    b. Regularly sweep oil dry to prevent tracking outside

SOP 830. SPILL KITS

1. SPILL KITS
    a. Each facility must have absorbent material available

b. Fuel stations must have a spill kit with absorbent pads, booms, and oil dry.

SOP 840. SPILL CLEANUP

1. SPILL CLEANUP
    a. Clean up minor spills immediately
    b. Never hose down spills or leaks
2. DRY CLEAN-UP METHODS
    a. Always use “Dry Clean-up Methods” for clean-up of fuel spills (gas, diesel, motor oil, kerosene)
        i. Spread absorbents (booms, pads, loose absorbents) on the spill
        ii. Sweep/pick up absorbed materials
        iii. Dispose of waste properly: Put rags soaked with free-flowing chemical and other absorbents in an impervious waste drum. Notify the Environmental Scientist.

SOP 850. REPORTING SPILLS

1. REPORTING SPILLS
    a. See Appendix A
    b. All spills, including minor outdoor leaks or spills, must be reported in the Stormwater Management Plan binder
    c. Report any spill to the Public Works Environmental Scientist and your supervisor.

SOP SERIES 900. CITY OF DOVER EMPLOYEE TRAINING

Purpose: Ensure permittee staff responsible for one or more NPDES program elements receives annual training.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOP: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 910. GENERAL TRAINING

1. GENERAL TRAINING
    a. Employees working at a maintenance facility that has a Stormwater Plan will understand their role in meeting the General Permit requirements through various forms of training
    b. All appropriate staff will be trained in Spill Prevention Response
    c. All appropriate staff will be trained in Illicit Discharge Detection and Elimination

SOP 920. CITY-WIDE INSPECTORS

1. INSPECTORS
    a. Maintain Blue Card certification by taking refresher course every five years.
2. CIVIL ENGINEERS / ENVIRONMENTAL SCIENTIST
    a. Maintain Certified Construction Reviewer certification by taking refresher course every five years.

SOP 930. PESTICIDE APPLICATORS

1. PESTICIDES APPLICATORS
    a. Grounds division staff must maintain Pesticide Applicator license by taking credited training throughout the year.

SOP SERIES 1000. NPDES PROGRAM DOCUMENTATION AND REPORTING

Purpose: Keep accurate logs and document all activities relative to meeting NPDES permit requirements.

Scope: Field Supervisors and Technicians need to be aware of these SOPs to prevent illicit discharges to the City's MS4. Public Works Environmental Scientist reviews and updates SWPPP and SOPs.

Location of SOP: Each facility has a copy of the SOPs. Electronic copies are also available.

Contacts: Contacts are in Appendix A

SOP 1010. STORMWATER PROGRAM DOCUMENTATION

1. DOCUMENTATION
    a. Stormwater Pollution Prevention & Management Program document
    b. Memorandum(s) of Agreement
    c. Public Education / Public Interaction
    d. Illicit Discharge Detection & Elimination
    e. Stormwater Management during Construction
    f. Post-Construction Stormwater Management
    g. Good Housekeeping
    h. Training
    i. Wet Weather Performance Monitoring
    j. Industrial Permit facility Stormwater Plan and inspections
    k. Program evaluation
    l. Annual reporting

SOP 1020. STREETS DIVISION DOCUMENTATION

1. DOCUMENTATION
    a. Street sweeping miles
    b. Street sweeping cubic yards
    c. Leaf collection cubic yards
    d. Catch basin cleaning
    e. Catch basin repair

SOP 1030. FLEET DOCUMENTATION

1. DOCUMENTATION
    a. Vehicle maintenance

SOP 1040. WATER / WASTEWATER DIVISION DOCUMENTATION

1. DOCUMENTATION
    a. Linear footage of CCTV pipe inspections

SOP 1050. GROUNDS DIVISION DOCUMENTATION

1. DOCUMENTATION
    a. Pesticide, herbicide, fertilizer spray logs

SOP 1060. SANITATION DOCUMENTATION

1. DOCUMENTATION
    a. Monthly curbside recycling statistics

SOP 1070. GIS DOCUMENTATION

1. DOCUMENTATION
    a. MS4 mapping

SOP 1080. CODE ENFORCEMENT DOCUMENTATION

1. DOCUMENTATION
    a. MS4 violations logged into Naviline

Appendix A: Important Contacts

Public Works

(302) 736-7025

Director of Public Works

Mark Nowak
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mnowak@dover.de.us

DPW Stormwater Coordinator

Bryn Wambaugh
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bwambaugh@dover.de.us

DPW Environmental Scientist

Aireal Vickers
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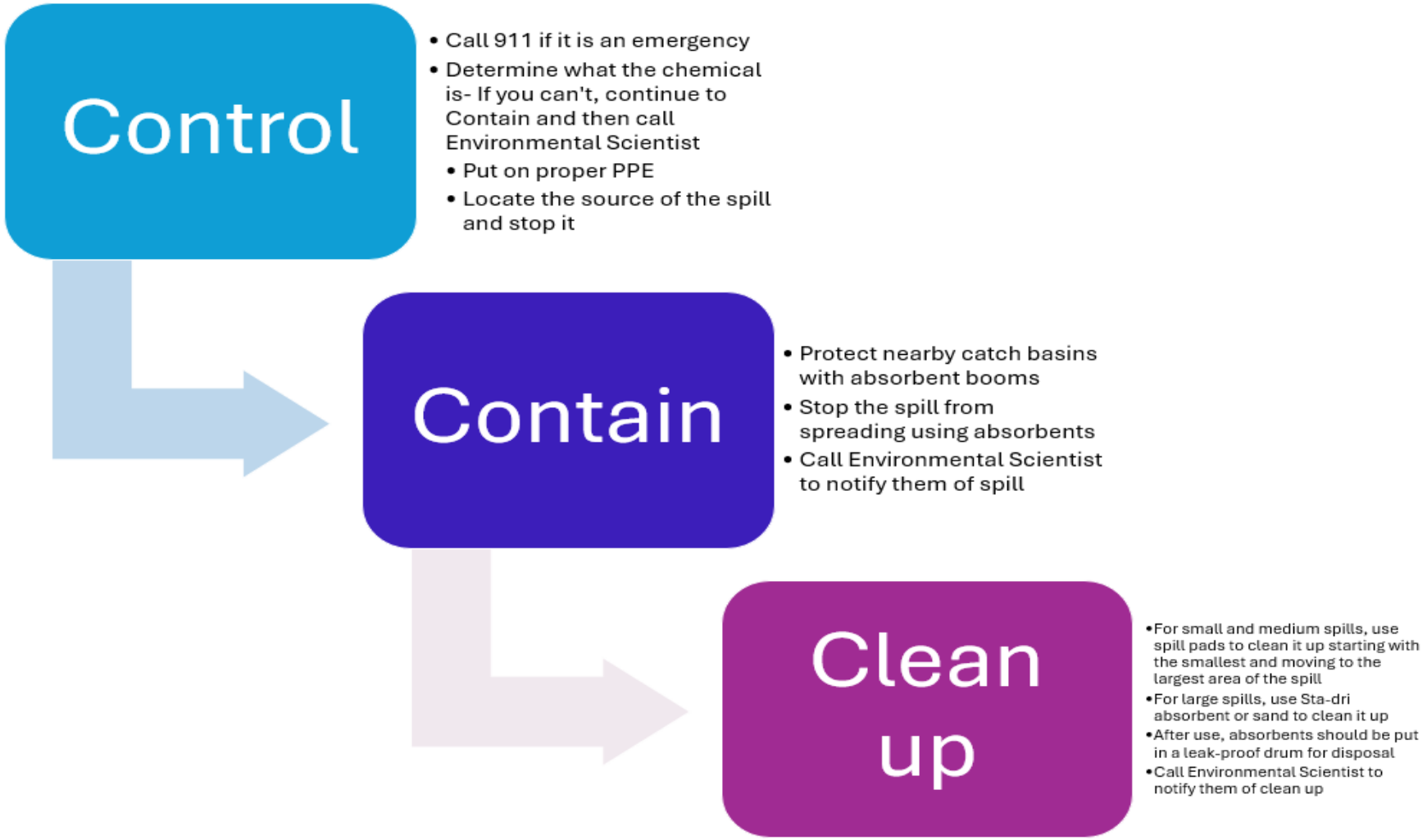
avickers@dover.de.us

Appendix B: 3 Cs of Spill Response (Spill Flowchart)


Control
• Call 911 if it is an emergency
• Determine what the chemical is- If you can't, continue to Contain and then call Environmental Scientist
• Put on proper PPE
• Locate the source of the spill and stop it
Contain
• Protect nearby catch basins with absorbent booms
• Stop the spill from spreading using absorbents
• Call Environmental Scientist to notify them of spill
Clean up
•For small and medium spills, use spill pads to clean it up starting with the smallest and moving to the largest area of the spill
•For large spills, use Sta-dri absorbent or sand to clean it up
•After use, absorbents should be put in a leak-proof drum for disposal
•Call Environmental Scientist to notify them of clean up