

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL (DNREC)
DIVISION OF FISH AND WILDLIFE

CONTRACT #NAT201501/MISPILLION

SPECIFICATIONS
FOR

MISPILLION COMPLEX PROJECT
BEACH NOURISHMENT AND ROCK PROTECTION
STRUCTURES

IN

DOVER, DE

PREPARED
BY

MOFFATT & NICHOL

ISSUED FOR BID
MARCH 31, 2016



BIDS WILL BE RECEIVED AT THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL UNTIL 2:00 P.M. May 6, 2016 AND WILL BE PUBLICLY OPENED AND READ ALOUD AT THAT TIME. PROPOSALS RECEIVED AFTER THAT DATE AND TIME SET FOR THE OPENING WILL BE RETURNED UNOPENED.

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INVITATION TO BID

Sealed bids for Contract No. NAT-201501/MISPILLION, will be received by the State of Delaware, Department of Natural Resources and Environmental Control, Division of Fish and Wildlife, at Room B172, Richardson & Robbins Building, 89 Kings Highway, Dover, Delaware 19901, until 2:00 p.m. local time on May 6, 2016, at which time they will be publicly opened and read aloud in the Conference Room. Bidder bears the risk of late delivery. Any bids received after the stated time will be returned unopened.

Project involves rehabilitation of the existing stone dike, construction of new rock groins and placement of sand for beach nourishment adjacent to the stone dike and along the Mispillion River.

A **MANDATORY** Pre-Bid Meeting will be held at 2:00 p.m. on April 21, 2016, at the DuPont Nature Center, 2992 Lighthouse Road, Milford DE 19963 the project's site for the purpose of establishing the listing of subcontractors and to answer questions followed by a visit (boat if weather permits) . Representatives of each party to any Joint Venture must attend this meeting. **ATTENDANCE OF THIS MEETING IS A PREREQUISITE FOR BIDDING ON THIS CONTRACT.**

Sealed bids shall be addressed to the Department of Natural Resources And Environmental Control, Division of Fish & Wildlife, 89 Kings Highway, Dover, DE 19901, attn.: Mr. Jeremy Ashe. The outer envelope should clearly indicate: **"CONTRACT NO. NAT-201501/MISPILLION - SEALED BID - DO NOT OPEN."**

Contract documents may be printed from the following web address www.bids.delaware.gov. or a CD containing contract documents can be obtained at the office of the Department of Natural Resources And Environmental Control, Division of Fish & Wildlife, 89 Kings Highway, Dover, DE 19901.

Construction documents will be available for review at the following locations: Delaware Contractors Association; Associated Builders and Contractors.

Bidders will not be subject to discrimination on the basis of race, creed, color, sex, sexual orientation, gender identity or national origin in consideration of this award, and Minority Business Enterprises, Disadvantaged Business Enterprises, Women-Owned Business Enterprises and Veteran-Owned Business Enterprises will be afforded full opportunity to submit bids on this contract. Each bid must be accompanied by a bid security equivalent to ten percent of the bid amount and all additive alternates. The successful bidder must post a performance bond and payment bond in a sum equal to 100 percent of the contract price upon execution of the contract. The Owner reserves the right to reject any or all bids and to waive any informalities therein. The Owner may extend the time and place for the opening of the bids from that described in the advertisement, with not less than two calendar days notice by certified delivery, facsimile machine or other electronic means to those bidders receiving plans.

END OF ADVERTISEMENT FOR BIDS

INSTRUCTIONS TO BIDDERS

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ARTICLE 1: GENERAL**1.1 DEFINITIONS**

1.1.1 Whenever the following terms are used, their intent and meaning shall be interpreted as follows:

1.2 STATE: The State of Delaware.

1.3 AGENCY: Contracting State Agency as noted on cover sheet.

1.4 DESIGNATED OFFICIAL: The agent authorized to act for the Agency.

1.5 BIDDING DOCUMENTS: Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bid, Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the Bid Form (including the Non-collusion Statement), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, as well as the Drawings, Specifications (Project Manual) and all Addenda issued prior to execution of the Contract.

1.6 CONTRACT DOCUMENTS: The Contract Documents consist of the, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the form of agreement between the Owner and the Contractor, Drawings (if any), Specifications (Project Manual), and all addenda.

1.7 AGREEMENT: The Agreement shall be the DNREC Contract Document contained in these specifications.

1.8 GENERAL REQUIREMENTS (or CONDITIONS): General Requirements (or conditions) are instructions pertaining to the Bidding Documents and to contracts in general. They contain, in summary, requirements of laws of the State; policies of the Agency and instructions to bidders.

1.9 SPECIAL PROVISIONS: Special Provisions are specific conditions or requirements peculiar to the bidding documents and to the contract under consideration and are supplemental to the General Requirements. Should the Special Provisions conflict with the General Requirements, the Special Provisions shall prevail.

1.10 ADDENDA: Written or graphic instruments issued by the Owner/Architect prior to the execution of the contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

1.11 BIDDER OR VENDOR: A person or entity who formally submits a Bid for the material or Work contemplated, acting directly or through a duly authorized representative who meets the requirements set forth in the Bidding Documents.

1.12 SUB-BIDDER: A person or entity who submits a Bid to a Bidder for materials or labor, or both for a portion of the Work.

1.13 BID: A complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

- 1.14 BASE BID: The sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids (if any are required to be stated in the bid).
- 1.15 ALTERNATE BID (or ALTERNATE): An amount stated in the Bid, where applicable, to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents is accepted.
- 1.16 UNIT PRICE: An amount stated in the Bid, where applicable, as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.
- 1.17 SURETY: The corporate body which is bound with and for the Contract, or which is liable, and which engages to be responsible for the Contractor's payments of all debts pertaining to and for his acceptable performance of the Work for which he has contracted.
- 1.18 BIDDER'S DEPOSIT: The security designated in the Bid to be furnished by the Bidder as a guaranty of good faith to enter into a contract with the Agency if the Work to be performed or the material or equipment to be furnished is awarded to him.
- 1.19 CONTRACT: The written agreement covering the furnishing and delivery of material or work to be performed.
- 1.20 CONTRACTOR: Any individual, firm, or corporation with whom a contract is made by the Agency.
- 1.21 SUBCONTRACTOR: An individual, partnership, or corporation which has a direct contract with a contractor to furnish labor and materials at the job site, or to perform construction labor and furnish material in connection with such labor at the job site.
- 1.22 CONTRACT BOND: The approved form of security furnished by the contractor and his surety as a guaranty of good faith on the part of the contractor to execute the work in accordance with the terms of the contract.

ARTICLE 2: BIDDER'S REPRESENTATIONS

- 2.1 PRE-BID MEETING
- 2.1.1 A pre-bid meeting for this project will be held at the time and place designated. Attendance at this meeting is a pre-requisite for submitting a Bid, unless this requirement is specifically waived elsewhere in the Bid Documents.
- 2.2 By submitting a Bid, the Bidder represents that:
- 2.2.1 The Bidder has read and understands the Bidding Documents and that the Bid is made in accordance therewith.
- 2.2.2 The Bidder has visited the site, become familiar with existing conditions under which the Work is to be performed, and has correlated the Bidder's his personal observations with the requirements of the proposed Contract Documents.
- 2.2.3 The Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception.

2.3 JOINT VENTURE REQUIREMENTS

- 2.3.1 For Public Works Contracts, each Joint Venturer shall be qualified and capable to complete the Work with their own forces.
- 2.3.2 Included with the Bid submission, and as a requirement to bid, a copy of the executed Joint Venture Agreement shall be submitted and signed by all Joint Venturers involved.
- 2.3.3 All required Bid Bonds, Performance Bonds, Material and Labor Payment Bonds must be executed by both Joint Venturers and be placed in both of their names.
- 2.3.4 All required insurance certificates shall name both Joint Venturers.
- 2.3.5 Both Joint Venturers shall sign the Bid Form and shall submit a copy of a valid Delaware Business License with their Bid.
- 2.3.6 Both Joint Venturers shall include their Federal E.I. Number with the Bid.
- 2.3.7 In the event of a mandatory Pre-bid Meeting, each Joint Venturer shall have a representative in attendance.
- 2.3.8 Due to exceptional circumstances and for good cause shown, one or more of these provisions may be waived at the discretion of the State.

2.4 ASSIGNMENT OF ANTITRUST CLAIMS

- 2.4.1 As consideration for the award and execution by the Owner of this contract, the Contractor hereby grants, conveys, sells, assigns and transfers to the State of Delaware all of its right, title and interests in and to all known or unknown causes of action it presently has or may now or hereafter acquire under the antitrust laws of the United States and the State of Delaware, relating to the particular goods or services purchased or acquired by the Owner pursuant to this contract.

ARTICLE 3: BIDDING DOCUMENTS**3.1 COPIES OF BID DOCUMENTS**

- 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the Architectural/Engineering firm designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein.
- 3.1.2 Bidders shall use complete sets of Bidding Documents for preparation of Bids. The issuing Agency nor the Architect assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 3.1.3 Any errors, inconsistencies or omissions discovered shall be reported to the Architect immediately.
- 3.1.4 The Agency and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it

relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall report any errors, inconsistencies, or ambiguities discovered to the Architect.

3.2.2 Bidders or Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Architect at least seven days prior to the date for receipt of Bids. Interpretations, corrections, and changes to the Bidding Documents will be made by written Addendum. Interpretations, corrections, or changes to the Bidding Documents made in any other manner shall not be binding.

3.2.3 The apparent silence of the specifications as to any detail, or the apparent omission from it of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality are to be used. Proof of specification compliance will be the responsibility of the Bidder.

3.2.4 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all permits, labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work.

3.2.5 The Owner will bear the costs for all impact and user fees associated with the project.

3.3 SUBSTITUTIONS

3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of quality, required function, dimension, and appearance to be met by any proposed substitution. The specification of a particular manufacturer or model number is not intended to be proprietary in any way. Substitutions of products for those named will be considered, providing that the Vendor certifies that the function, quality, and performance characteristics of the material offered is equal or superior to that specified. It shall be the Bidder's responsibility to assure that the proposed substitution will not affect the intent of the design, and to make any installation modifications required to accommodate the substitution.

3.3.2 Requests for substitutions shall be made in writing to the Architect at least ten days prior to the date of the Bid Opening. Such requests shall include a complete description of the proposed substitution, drawings, performance and test data, explanation of required installation modifications due the substitution, and any other information necessary for an evaluation. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval shall be final. The Architect is to notify Owner prior to any approvals.

3.3.3 If the Architect approves a substitution prior to the receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding.

3.3.4 The Architect shall have no obligation to consider any substitutions after the Contract award.

3.4 ADDENDA

3.4.1 Addenda will be mailed or delivered to all who are known by the Architect to have received a complete set of the Bidding Documents.

3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

3.4.3 No Addenda will be issued later than 4 days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which extends the time or changes the location for the opening of bids.

- 3.4.4 Each bidder shall ascertain prior to submitting his Bid that they have received all Addenda issued, and shall acknowledge their receipt in their Bid in the appropriate space. Not acknowledging an issued Addenda could be grounds for determining a bid to be non-responsive.

ARTICLE 4: BIDDING PROCEDURES

4.1 PREPARATION OF BIDS

- 4.1.1 Submit the bids on the Bid Forms included with the Bidding Documents.
- 4.1.2 Submit the original Bid Form for each bid. Bid Forms may be removed from the project manual for this purpose.
- 4.1.3 Execute all blanks on the Bid Form in a non-erasable medium (typewriter or manually in ink).
- 4.1.4 Where so indicated by the makeup on the Bid Form, express sums in both words and figures, in case of discrepancy between the two, the written amount shall govern.
- 4.1.5 Interlineations, alterations or erasures must be initialed by the signer of the Bid.
- 4.1.6 BID ALL REQUESTED ALTERNATES AND UNIT PRICES, IF ANY. If there is no change in the Base Bid for an Alternate, enter "No Change". The Contractor is responsible for verifying that they have received all addenda issued during the bidding period. Work required by Addenda shall automatically become part of the Contract.
- 4.1.7 Make no additional stipulations on the Bid Form and do not qualify the Bid in any other manner.
- 4.1.8 Each copy of the Bid shall include the legal name of the Bidder and a statement whether the Bidder is a sole proprietor, a partnership, a corporation, or any legal entity, and each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current Power of Attorney attached, certifying agent's authority to bind the Bidder.
- 4.1.9 Bidder shall complete the Non-Collusion Statement form included with the Bid Forms and include it with their Bid.
- 4.1.10 In the construction of all Public Works projects for the State of Delaware or any agency thereof, preference in employment of laborers, workers or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State.
- 4.1.11 Each bidder shall include in their bid a copy of a valid Delaware Business License.'
- 4.1.12 Each bidder shall include signed Affidavit(s) for the Bidder and each listed Subcontractor certifying compliance with OMB Regulation 4104- "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects." "Large Public Works" is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.
- ##### **4.2 BID SECURITY**
- 4.2.1 All bids shall be accompanied by a deposit of either a good and sufficient bond to the agency for the benefit of the agency, with corporate surety authorized to do business in this State, the form of the bond and the surety to be approved by the agency, or a security of the bidder assigned to the agency, for a sum equal to at least 10% of the bid plus all add alternates, or

in lieu of the bid bond a security deposit in the form of a certified check, bank treasurer's check, cashier's check, money order, or other prior approved secured deposit assigned to the State. The bid bond need not be for a specific sum, but may be stated to be for a sum equal to 10% of the bid plus all add alternates to which it relates and not to exceed a certain stated sum, if said sum is equal to at least 10% of the bid. The Bid Bond form used shall be the standard OMB form (attached).

4.2.2 The Agency has the right to retain the bid security of Bidders to whom an award is being considered until either a formal contract has been executed and bonds have been furnished or the specified time has elapsed so the Bids may be withdrawn or all Bids have been rejected.

4.2.3 In the event of any successful Bidder refusing or neglecting to execute a formal contract and bond within 20 days of the awarding of the contract, the bid bond or security deposited by the successful bidder shall be forfeited.

4.3 SUBCONTRACTOR LIST

4.3.1 As required by Delaware Code, Title 29, section 6962(d)(10)b, each Bidder shall submit with their Bid a completed List of Sub-Contractors included with the Bid Form. NAME ONLY ONE SUBCONTRACTOR FOR EACH TRADE. A Bid will be considered non-responsive unless the completed list is included.

4.3.2 Provide the Name and Address for each listed subcontractor. Addresses by City, Town or Locality, plus State, will be acceptable.

4.3.3 It is the responsibility of the Contractor to ensure that their Subcontractors are in compliance with the provisions of this law. Also, if a Contractor elects to list themselves as a Subcontractor for any category, they must specifically name themselves on the Bid Form and be able to document their capability to act as Subcontractor in that category in accordance with this law.

4.4 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

4.4.1 During the performance of this contract, the contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment, without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

B. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, sexual orientation, gender identity or national origin."

4.5 PREVAILING WAGE REQUIREMENT

4.5.1 Wage Provisions: For renovation and new construction projects whose costs exceed the thresholds contained in Delaware Code, Title 29, Section 6960, the minimum wage rates for various classes of laborers and mechanics shall be as determined by the Department of Labor, Division of Industrial Affairs of the State of Delaware.

4.5.2 The employer shall pay all mechanics and labors employed directly upon the site of work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics.

4.5.3 The scale of the wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work.

4.5.4 Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

4.6 SUBMISSION OF BIDS

4.6.1 Enclose the Bid, the Bid Security, and any other documents required to be submitted with the Bid in a sealed opaque envelope. Address the envelope to the party receiving the Bids. Identify with the project name, project number, and the Bidder's name and address. If the Bid is sent by mail, enclose the sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof. The State is not responsible for the opening of bids prior to bid opening date and time that are not properly marked.

4.6.2 Deposit Bids at the designated location prior to the time and date for receipt of bids indicated in the Advertisement for Bids. Bids received after the time and date for receipt of bids will be marked "LATE BID" and returned.

4.6.3 Bidder assumes full responsibility for timely delivery at location designated for receipt of bids.

4.6.4 Oral, telephonic or telegraphic bids are invalid and will not receive consideration.

4.6.5 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids, provided that they are then fully in compliance with these Instructions to Bidders.

4.7 MODIFICATION OR WITHDRAW OF BIDS

4.7.1 Prior to the closing date for receipt of Bids, a Bidder may withdraw a Bid by personal request and by showing proper identification to the Architect. A request for withdraw by letter or fax, if the Architect is notified in writing prior to receipt of fax, is acceptable. A fax directing a modification in the bid price will render the Bid informal, causing it to be ineligible for consideration of award. Telephone directives for modification of the bid price shall not be permitted and will have no bearing on the submitted proposal in any manner.

4.7.2 Bidders submitting Bids that are late shall be notified as soon as practicable and the bid shall be returned.

4.7.3 A Bid may not be modified, withdrawn or canceled by the Bidder during a thirty (30) day period following the time and date designated for the receipt and opening of Bids, and Bidder so agrees in submitting their Bid. Bids shall be binding for 30 days after the date of the Bid opening.

ARTICLE 5: CONSIDERATION OF BIDS

5.1 OPENING/REJECTION OF BIDS

5.1.1 Unless otherwise stated, Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids will be made available to Bidders.

5.1.2 The Agency shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid Security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

5.1.3 If the Bids are rejected, it will be done within thirty (30) calendar day of the Bid opening.

5.2 COMPARISON OF BIDS

5.2.1 After the Bids have been opened and read, the bid prices will be compared and the result of such comparisons will be made available to the public. Comparisons of the Bids may be based on the Base Bid plus desired Alternates. The Agency shall have the right to accept Alternates in any order or combination.

5.2.2 The Agency reserves the right to waive technicalities, to reject any or all Bids, or any portion thereof, to advertise for new Bids, to proceed to do the Work otherwise, or to abandon the Work, if in the judgment of the Agency or its agent(s), it is in the best interest of the State.

5.2.3 An increase or decrease in the quantity for any item is not sufficient grounds for an increase or decrease in the Unit Price.

5.2.4 The prices quoted are to be those for which the material will be furnished F.O.B. Job Site and include all charges that may be imposed during the period of the Contract.

5.2.5 No qualifying letter or statements in or attached to the Bid, or separate discounts will be considered in determining the low Bid except as may be otherwise herein noted. Cash or separate discounts should be computed and incorporated into Unit Bid Price(s).

5.3 DISQUALIFICATION OF BIDDERS

5.3.1 An agency shall determine that each Bidder on any Public Works Contract is responsible before awarding the Contract. Factors to be considered in determining the responsibility of a Bidder include:

- A. The Bidder's financial, physical, personnel or other resources including Subcontracts;
- B. The Bidder's record of performance on past public or private construction projects, including, but not limited to, defaults and/or final adjudication or admission of violations of the Prevailing Wage Laws in Delaware or any other state;
- C. The Bidder's written safety plan;
- D. Whether the Bidder is qualified legally to contract with the State;
- E. Whether the Bidder supplied all necessary information concerning its responsibility; and,
- F. Any other specific criteria for a particular procurement, which an agency may establish; provided however, that, the criteria be set forth in the Invitation to Bid and is otherwise in conformity with State and/or Federal law.

5.3.2 If an agency determines that a Bidder is nonresponsive and/or nonresponsible, the determination shall be in writing and set forth the basis for the determination. A copy of

the determination shall be sent to the affected Bidder within five (5) working days of said determination.

5.3.3 In addition, any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and the rejection of their Bid or Bids.

5.3.3.1 More than one Bid for the same Contract from an individual, firm or corporation under the same or different names.

5.3.3.2 Evidence of collusion among Bidders.

5.3.3.3 Unsatisfactory performance record as evidenced by past experience.

5.3.3.4 If the Unit Prices are obviously unbalanced either in excess or below reasonable cost analysis values.

5.3.3.5 If there are any unauthorized additions, interlineation, conditional, or alternate bids or irregularities of any kind which may tend to make the Bid incomplete, indefinite, or ambiguous as to its meaning.

5.3.3.6 If the Bid is not accompanied by the required Bid Security and other data required by the Bidding Documents.

5.3.3.7 If any exceptions or qualifications of the Bid are noted on the Bid Form.

5.4 ACCEPTANCE OF BID AND AWARD OF CONTRACT

5.4.1 A formal Contract shall be executed with the successful Bidder within twenty (20) calendar days after the award of the Contract.

5.4.2 Per Section 6962(d)(13) a., Title 29, Delaware Code, "The contracting agency shall award any public works contract within thirty (30) days of the bid opening to the lowest responsive and responsible Bidder, unless the Agency elects to award on the basis of best value, in which case the election to award on the basis of best value shall be stated in the Invitation To Bid."

5.4.3 Each Bid on any Public Works Contract must be deemed responsive by the Agency to be considered for award. A responsive Bid shall conform in all material respects to the requirements and criteria set forth in the Contract Documents and specifications.

5.4.4 The Agency shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid, plus accepted Alternates.

5.4.5 The successful Bidder shall execute a formal contract, submit the required Insurance Certificate, and furnish good and sufficient bonds, unless specifically waived in the General Requirements, in accordance with the General Requirement, within twenty (20) days of official notice of contract award. The successful Bidder shall provide two business days prior to contract execution, copies of the Employee Drug Testing Program for the Bidder and all listed Subcontractors. Bonds shall be for the benefit of the Agency with surety in the amount of 100% of the total contract award. Said Bonds shall be conditioned upon the faithful performance of the contract. Bonds shall remain in affect for period of one year after the date of substantial completion.

5.4.6 If the successful Bidder fails to execute the required Contract, Bond and all required information, as aforesaid, within twenty (20) calendar days after the date of official Notice of the Award of the Contract, their Bid guaranty shall immediately be taken and become the property of the State for the benefit of the Agency as liquidated damages, and not as a

forfeiture or as a penalty. Award will then be made to the next lowest qualified Bidder of the Work or readvertised, as the Agency may decide.

- 5.4.7 Each bidder shall supply with its bid its taxpayer identification number (i.e., federal employer identification number or social security number) and a copy of its Delaware business license, and should the vendor be awarded a contract, such vendor shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.
- 5.4.8 The Bid Security shall be returned to the successful Bidder upon the execution of the formal contract. The Bid Securities of unsuccessful bidders shall be returned within thirty (30) calendar days after the opening of the Bids.

ARTICLE 6: POST-BID INFORMATION

6.1 CONTRACTOR'S QUALIFICATION STATEMENT

- 6.1.1 Bidders to whom award of a Contract is under consideration shall, if requested by the Agency, submit a properly executed Contractor's Qualification Statement, unless such a statement has been previously required and submitted.

6.2 BUSINESS DESIGNATION FORM

- 6.2.1 Successful bidder shall be required to accurately complete an Office of Management and Budget Business Designation Form for Subcontractors.

ARTICLE 7: PERFORMANCE BOND AND PAYMENT BOND

7.1 BOND REQUIREMENTS

- 7.1.1 The cost of furnishing the required Bonds that are stipulated in the Bidding Documents, shall be included in the Bid.
- 7.1.2 If the Bidder is required by the Agency to secure a bond from other than the Bidder's usual sources, changes in cost will be adjusted as provide in the Contract Documents.
- 7.1.3 The Performance and Payment Bond forms used shall be the standard OMB forms (attached).

7.2 TIME OF DELIVERY AND FORM OF BONDS

- 7.2.1 The bonds shall be dated on or after the date of the Contract.
- 7.2.2 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix a certified and current copy of the power of attorney.

ARTICLE 8: FORM OF AGREEMENT BETWEEN AGENCY AND CONTRACTOR

- 8.1 The Agreement for the Work will be written the DNREC Contract Document contained in these specifications.

END OF INSTRUCTIONS TO BIDDERS

**MISPILLION COMPLEX PROJECT BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES
DOVER, DE
CONTRACT NO. NAT-201501/MISPILLION**

BID FORM

For Bids Due: May 6, 2016

**To: DEPARTMENT OF NATURAL RESOURCES AND
ENVIRONMENTAL CONTROL (DNREC)
DIVISION OF FISH AND WILDLIFE
89 KINGS HIGHWAY
DOVER, DE 19901**

Name of Bidder: _____

Delaware Business License No.: _____ **Taxpayer ID No.:** _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

(Other License Nos.): _____

Phone No.: () _____ - _____ **Fax No.:** () _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

\$ _____
(\$ _____)

ALTERNATES

Alternate prices conform to applicable project specification section. Refer to specifications for a complete description of the following Alternates. To be "ADDED" to the lump sum base bid amount if approved.

ALTERNATE No. 1: Purchase material and install Rock Groins D, E, & F per the plans and specifications

Add _____
(\$ _____)

MISPILLION COMPLEX PROJECT BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES
DOVER, DE
CONTRACT NO. NAT-201501/MISPILLION

BID FORM

BID QUANTITIES

Bid quantities 1 to 6 to be used for the lump sum bid above are as follows:

BID ITEM No. 1 – Mobilization & Demobilization (1 Lump Sum)

BID ITEM No. 2 – Geotextile (4,500 Square Yards)

BID ITEM No. 3 – DelDOT Class R-4 Core Stone (2,200 Ton)

BID ITEM No. 4 – DelDOT Class R-6 Armor Stone (1,400 Ton)

BID ITEM No. 5 – DelDOT Class R-7 Armor Stone (7,800 Ton)

BID ITEM No. 6 – Sand Beachfill (45,800 Cubic Yards)

ALTERNATE No. 1 DelDOT Class R-6 Armor Stone (850 Ton) [OPTIONAL UPON DNREC
AUTHORIZATION] Bid quantitie to be added to base bid if approved.

MISPILLION COMPLEX PROJECT BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES
DOVER, DE
CONTRACT NO. NAT-201501/MISPILLION

BID FORM

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	<u>ADD</u>	<u>DEDUCT</u>
UNIT PRICE BID ITEM No. 2 – Geotextile per square yard	\$ _____	\$ _____
UNIT PRICE BID ITEM No. 3 – DelDOT Class R-4 Core Stone per ton	\$ _____	\$ _____
UNIT PRICE BID ITEM No. 4 – DelDOT Class R-6 Armor Stone per ton	\$ _____	\$ _____
UNIT PRICE BID ITEM No. 5 – DelDOT Clas R-7 Armor Stone per ton	\$ _____	\$ _____
UNIT PRICE BID ITEM No. 6 – Sand Beachfill per cubic yard	\$ _____	\$ _____
ALTERNATE No. 1		
UNIT PRICE BID ITEM No. 7 – DelDOT Class R-6 Armor Stone per ton [OPTIONAL UPON DNREC AUTHORIZATION]	\$ _____	\$ _____

MISPILLION COMPLEX PROJECT BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES
DOVER, DE
CONTRACT NO. NAT-201501/MISPILLION

BID FORM

I / We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for thirty (30) days from the date of opening of bids (60 days for School Districts and Department of Education), and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid.

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

Should I/We be awarded this contract, I/We pledge to achieve substantial completion of all the work within _____ calendar days of the Notice to Proceed.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

(State of Corporation)

Business Address: _____

Witness: _____ By: _____
(SEAL) (Authorized Signature)

(Title)

Date: _____

ATTACHMENTS

Sub-Contractor List
Non-Collusion Statement
Affidavit(s) of Employee Drug Testing Program
Bid Security
(Others as Required by Project Manuals)

MISPILLION COMPLEX PROJECT BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES
DOVER, DE
CONTRACT NO. NAT-201501/MISPILLION

BID FORM

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor **must be listed for each category** where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the *Owner*, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.** This form must be filled out completely with no additions or deletions. **Note that all subcontractors listed below must have a signed Affidavit of Employee Drug Testing Program included with this bid.**

<u>Subcontractor Category</u>	<u>Subcontractor</u>	<u>Address (City & State)</u>	<u>Subcontractors tax payer ID # or Delaware Business license #</u>
1. Sand Placement	_____	_____	_____
2. Rock Placement	_____	_____	_____
3. Surveying	_____	_____	_____

MISPILLION COMPLEX PROJECT BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES
DOVER, DE
CONTRACT NO. NAT-201501/MISPILLION

BID FORM

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date *(to the Office of Management and Budget, Division of Facilities Management)*.

All the terms and conditions of *(Project or Contract Number)* have been thoroughly examined and are understood.

NAME OF BIDDER: _____

**AUTHORIZED REPRESENTATIVE
(TYPED):** _____

**AUTHORIZED REPRESENTATIVE
(SIGNATURE):** _____

TITLE: _____

ADDRESS OF BIDDER: _____

E-MAIL: _____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

MISPILLION COMPLEX PROJECT BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES
DOVER, DE
CONTRACT NO. NAT-201501/MISPILLION

**AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM**

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL (DNREC)
DIVISION OF FISH AND WILDLIFE

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____
_____ of _____ in the County of _____
_____ and State of _____ as **Principal**, and _____
_____ of _____ in the County of _____
and State of _____ as **Surety**, legally authorized to do business in the State of Delaware
("State"), are held and firmly unto the **State** in the sum of _____
_____ Dollars (\$ _____), or _____ percent not to exceed _____
_____ Dollars (\$ _____)
of amount of bid on Contract No. 201501/MISPELLION, to be paid to the **State** for the use and benefit of
Department of Natural Resources and Environmental Control, Division of Fish and Wildlife for which
payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors,
administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bonded **Principal**
who has submitted to the **Department of Natural Resources and Environmental Control, Division of
Fish and Wildlife** a certain proposal to enter into this contract for the furnishing of certain material and/or
services within the **State**, shall be awarded this Contract, and if said **Principal** shall well and truly enter into
and execute this Contract as may be required by the terms of this Contract and approved by the **Department
of Natural Resources and Environmental Control, Division of Fish and Wildlife** this Contract to be
entered into within twenty days after the date of official notice of the award thereof in accordance with the
terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____ seal and dated this _____ day of _____ in the year of our Lord two
thousand and _____ (20____).

SEALED, AND DELIVERED IN THE
Presence of

Name of Bidder (Organization)

Corporate
Seal

By:

Authorized Signature

Attest _____

Title

Name of Surety

Witness: _____

By:

Title

00 73 46 PREVAILING WAGE RATE DETERMINATION

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 451-3423

Mailing Address:
225 CORPORATE BOULEVARD
SUITE 104
NEWARK, DE 19702

Located at:
225 CORPORATE BOULEVARD
SUITE 104
NEWARK, DE 19702

PREVAILING WAGES FOR HEAVY CONSTRUCTION EFFECTIVE MARCH 15, 2016

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
ASBESTOS WORKERS	21.82	19.20	41.74
BOILERMAKERS	75.62	31.72	58.19
BRICKLAYERS	46.43	22.91	24.60
CARPENTERS	52.81	52.81	41.97
CEMENT FINISHERS	43.05	24.05	17.91
ELECTRICAL LINE WORKERS	72.73	27.89	63.84
ELECTRICIANS	65.10	65.10	65.10
GLAZIERS	20.17	17.51	11.85
INSULATORS	54.38	54.38	54.38
IRON WORKERS	60.19	60.19	57.58
LABORERS	43.60	43.60	43.60
MILLWRIGHTS	66.83	66.83	53.40
PAINTERS	75.26	75.26	75.26
PILEDRIERS	72.97	38.86	30.25
PLASTERERS	18.99	16.49	11.15
PLUMBERS/PIPEFITTERS/STEAMFITTERS	82.03	76.87	17.67
POWER EQUIPMENT OPERATORS	61.36	61.36	61.36
SHEET METAL WORKERS	30.35	18.82	17.68
SPRINKLER FITTERS	32.70	12.38	10.25
TRUCK DRIVERS	31.56	20.36	21.99

CERTIFIED:

3/23/2016

BY:

Dan H. Nelson / for
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 451-3423.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: NAT201501/Mispillion Misfillion Complex Project Beach Nourishment and Rock Protection Structure, Kent County

DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL

89 KINGS HIGHWAY

DOVER, DE 19901

CONTRACT DOCUMENT

FOR

MISPILLION COMPLEX PROJECT
BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES
CONTRACT NO. NAT201501/MISPILLION

THIS AGREEMENT, made and executed this _____ day of _____, 2016, by and between _____ (Hereinafter designated as Contractor) party of the first part, and the Department of Natural Resources and Environmental Control, a Department created under the laws of the State of Delaware (hereinafter designated as Department) party of the second part.

WITNESSETH that the Contractor, in consideration of the covenants and agreements herein contained and made by the Department, agrees to the following:

ARTICLE ONE. The Contractor shall provide and furnish all the material, supplies, machinery, implements, appliances, tools and labor required to complete this contract in Kent County, State of Delaware, as shown and specified in the specifications, proposals, drawings or plans as indicated in the project manual issued for the Department, with specifications, proposals, drawings or plans entitled **MISPILLION COMPLEX PROJECT BEACH NOURISHMENT AND ROCK PROTECTION STRUCTURES CONTRACT NO. NAT201501/MISPILLION** is hereby incorporated by reference as part of this contract. This contract will be binding on both parties upon receipt by the Contractor of an approved State of Delaware Purchase Order. The Contractor must prosecute the work in such order as to complete the fill placement and rock protection structures no later than February 15, 2017.

ARTICLE TWO. General Indemnification: By submitting a proposal, the proposing vendor agrees that in the event it is awarded a contract, it will indemnify and otherwise hold harmless the U.S. Government, the U.S. Army Corps of Engineers, and the State of Delaware, its agents and employees from any and all liability, suits, actions, or claims, together with all costs, expenses for attorney's fees, arising out of the vendor's agents and employees' performance work or services in connection with the contract, regardless of whether such suits, actions, claims or liabilities are based upon acts or failures to act attributable, in whole or part, to the State, its employees or agents. Vendor further agrees that in the event it is awarded a contract, it will be responsible for all damages to the federal project and be required to repair such damage in a timely manner to the satisfaction of the U.S.A.C.E.

CONTRACT DOCUMENT (CONTINUED)

IN WITNESS WHEREOF, the said parties have duly executed this agreement in triplicate the day and year first above written.

IN WITNESS WHEREOF, the parties below have hereunto set their hands on the _____ day of _____, 2016.

Contractor

Witness

By: _____
Title

State of _____
County of _____

Sworn and subscribed before me this _____ day of _____, 2016.

Notary Public

IN WITNESS WHEREOF, the parties below have hereunto set their hands on the _____ day of _____, 2016.

Witness

Project Manager
Division of Fish and Wildlife

State of _____
County of _____

Sworn and subscribed before me this _____ day of _____, 2016.

Notary Public

CONTRACT DOCUMENT (CONTINUED)

IN WITNESS WHEREOF, the parties below have hereunto set their hands on the _____
day of _____, 2016.

Witness

Director, Division of Fish and Wildlife

State of _____
County of _____

Sworn and subscribed before me this _____ day of _____, 2016.

Notary Public

Witness

Secretary, Department of
Natural Resources &
Environmental Control

State of _____
County of _____

Sworn and subscribed before me this _____ day of _____, 2016.

Notary Public

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL (DNREC)
DIVISION OF FISH AND WILDLIFE

PERFORMANCE BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal (“**Principal**”), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety (“**Surety**”), are held and firmly bound unto the _____ **Department of Natural Resources and Environmental Control, Division of Fish and Wildlife** (“**Owner**”), in the amount of _____ (\$_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 2016.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. NAT-201501/MISPILLION dated the _____ day of _____, 2016 (the “Contract”), which Contract is incorporated herein by reference, shall well and truly provide and furnish all materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and the Contract Documents (as defined in the Contract) or any changes or modifications thereto made as therein provided, shall make good and reimburse **Owner** sufficient funds to pay the costs of completing the Contract that **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, hereby stipulates and agrees, if requested to do so by **Owner**, to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof, if for any cause **Principal** fails or neglects to so fully perform and complete such work.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other

transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____ (SEAL)

Name:

Title:

SURETY

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____ (SEAL)

Name:

Title:

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL (DNREC)
DIVISION OF FISH AND WILDLIFE

PAYMENT BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal (“**Principal**”), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety (“**Surety**”), are held and firmly bound unto the **State (“Owner”) Department of Natural Resources and Environmental Control, Division of Fish and Wildlife**, in the amount of _____ (\$_____), to be paid to **Owner**, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 2016.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if **Principal**, who has been awarded by **Owner** that certain contract known as Contract No. NAT-201501/MISPILLION dated the _____ day of _____, 2016 (the “Contract”), which Contract is incorporated herein by reference, shall well and truly pay all and every person furnishing materials or performing labor or service in and about the performance of the work under the Contract, all and every sums of money due him, her, them or any of them, for all such materials, labor and service for which **Principal** is liable, shall make good and reimburse **Owner** sufficient funds to pay such costs in the completion of the Contract as **Owner** may sustain by reason of any failure or default on the part of **Principal**, and shall also indemnify and save harmless **Owner** from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of **Surety** and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and **Surety** hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to **Surety** as though done or omitted to be done by or in relation to **Principal**.

Surety hereby stipulates and agrees that no modifications, omission or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of **Surety** and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to **Surety** or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, **Principal** and **Surety** have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

PRINCIPAL

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____(SEAL)
Name:
Title:

SURETY

Name: _____

Witness or Attest: Address: _____

Name:

(Corporate Seal)

By: _____(SEAL)
Name:
Title:

GENERAL REQUIREMENTS

TABLE OF ARTICLES

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ADMINISTRATION OF THE CONTRACT
5. SUBCONTRACTORS
6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7. CHANGES IN THE WORK
8. TIME
9. PAYMENTS AND COMPLETION
10. PROTECTION OF PERSONS AND PROPERTY
11. INSURANCE AND BONDS
12. UNCOVERING AND CORRECTION OF WORK
13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT

ARTICLE 1: GENERAL**1.1 CONTRACT DOCUMENTS**

1.1.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary and what is required by one shall be as binding as if required by all. Performance by the Contractor shall be required to an extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

1.1.2 Work including material purchases shall not begin until the Contractor is in receipt of a bonafide State of Delaware Purchase Order. Any work performed or material purchases prior to the issuance of the Purchase Order is done at the Contractor's own risk and cost.

1.2 EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

1.2.1 For Public Works Projects financed in whole or in part by state appropriation the Contractor agrees that during the performance of this contract:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color, sexual orientation, gender identity or national origin. The Contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, sex, color, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, sex, color, sexual orientation, gender identity or national origin."

ARTICLE 2: OWNER

(NO ADDITIONAL GENERAL REQUIREMENTS – SEE SUPPLEMENTARY GENERAL CONDITIONS)

ARTICLE 3: CONTRACTOR

3.1 Schedule of Values: The successful Bidder shall within twenty (20) days after receiving notice to proceed with the work, furnish to the Owner a complete schedule of values on the various items comprising the work.

3.2 Subcontracts: Upon approval of Subcontractors, the Contractor shall award their Subcontracts as soon as possible after the signing of their own contract and see that all material, their own and those of their Subcontractors, are promptly ordered so that the work will not be delayed by failure of materials to arrive on time.

3.3 Before commencing any work or construction, the General Contractor is to consult with the Owner as to matters in connection with access to the site and the allocation of Ground Areas for the various features of hauling, storage, etc.

- 3.4 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions.
- 3.5 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.
- 3.6 The Contractor warrants to the Owner that materials and equipment furnished will be new and of good quality, unless otherwise permitted, and that the work will be free from defects and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved, may be considered defective. If required by the Owner, the Contractor shall furnish evidence as to the kind and quality of materials and equipment provided.
- 3.7 Unless otherwise provided, the Contractor shall pay all sales, consumer, use and other similar taxes, and shall secure and pay for required permits, fees, licenses, and inspections necessary for proper execution of the Work.
- 3.8 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work. The Contractor shall promptly notify the Owner if the Drawings and Specifications are observed to be at variance therewith.
- 3.9 The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work under contract with the Contractor.
- 3.10 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove from and about the Project all waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials. The Contractor shall be responsible for returning all damaged areas to their original conditions.
- 3.11 STATE LICENSE AND TAX REQUIREMENTS
- 3.11.1 Each Contractor and Subcontractor shall be licensed to do business in the State of Delaware and shall pay all fees and taxes due under State laws. In conformance with Section 2503, Chapter 25, Title 30, Delaware Code, "the Contractor shall furnish the Delaware Department of Finance within ten (10) days after entering into any contract with a contractor or subcontractor not a resident of this State, a statement of total value of such contract or contracts together with the names and addresses of the contracting parties."
- 3.12 The Contractor shall comply with all requirements set forth in Section 6962, Chapter 69, Title 29 of the Delaware Code.
- 3.13 During the contract Work, the Contractor and each listed Subcontractor, shall implement an Employee Drug Testing Program in accordance with OMB Regulation 4104- "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects". "Large Public Works" is based upon the current threshold required for bidding Public Works as set by the Purchasing and Contracting Advisory Council.

ARTICLE 4: ADMINISTRATION OF THE CONTRACT**4.1 CONTRACT SURETY****4.1.1 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND**

4.1.2 All bonds will be required as follows unless specifically waived elsewhere in the Bidding Documents.

4.1.3 Contents of Performance Bonds – The bond shall be in the form approved by the Office of Management and Budget. The bond shall be conditioned upon the faithful compliance and performance by the successful bidder of each and every term and condition of the contract and the proposal, plans, specifications, and bid documents thereof. Each term and condition shall be met at the time and in the manner prescribed by the Contract, Bid documents and the specifications, including the payment in full to every person furnishing material or performing labor in the performance of the Contract, of all sums of money due the person for such labor and material. (The bond shall also contain the successful bidder's guarantee to indemnify and save harmless the State and the agency from all costs, damages and expenses growing out of or by reason of the Contract in accordance with the Contract.)

4.1.4 Invoking a Performance Bond – The agency may, when it considers that the interest of the State so require, cause judgement to be confessed upon the bond.

4.1.5 Within twenty (20) days after the date of notice of award of contract, the Bidder to whom the award is made shall furnish a Performance Bond and Labor and Material Payment Bond, each equal to the full amount of the Contract price to guarantee the faithful performance of all terms, covenants and conditions of the same. The bonds are to be issued by an acceptable Bonding Company licensed to do business in the State of Delaware and shall be issued in duplicate.

4.1.6 Performance and Payment Bonds shall be maintained in full force (warranty bond) for a period of two (2) years after the date of the Certificate for Final Payment. The Performance Bond shall guarantee the satisfactory completion of the Project and that the Contractor will make good any faults or defects in his work which may develop during the period of said guarantees as a result of improper or defective workmanship, material or apparatus, whether furnished by themselves or their Sub-Contractors. The Payment Bond shall guarantee that the Contractor shall pay in full all persons, firms or corporations who furnish labor or material or both labor and material for, or on account of, the work included herein. The bonds shall be paid for by this Contractor. The Owner shall have the right to demand that the proof parties signing the bonds are duly authorized to do so.

4.2 FAILURE TO COMPLY WITH CONTRACT

4.2.1 If any firm entering into a contract with the State, or Agency that neglects or refuses to perform or fails to comply with the terms thereof, the Agency which signed the Contract may terminate the Contract and proceed to award a new contract in accordance with this Chapter 69, Title 29 of the Delaware Code or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond. Nothing herein shall preclude the Agency from pursuing additional remedies as otherwise provided by law.

4.3 CONTRACT INSURANCE AND CONTRACT LIABILITY

4.3.1 In addition to the bond requirements stated in the Bid Documents, each successful Bidder shall purchase adequate insurance for the performance of the Contract and, by submission of a Bid, agrees to indemnify and save harmless and to defend all legal or equitable actions brought against the State, any Agency, officer and/or employee of the

State, for and from all claims of liability which is or may be the result of the successful Bidder's actions during the performance of the Contract.

- 4.3.2 The purchase or nonpurchase of such insurance or the involvement of the successful Bidder in any legal or equitable defense of any action brought against the successful Bidder based upon work performed pursuant to the Contract will not waive any defense which the State, its agencies and their respective officers, employees and agents might otherwise have against such claims, specifically including the defense of sovereign immunity, where applicable, and by the terms of this section, the State and all agencies, officers and employees thereof shall not be financially responsible for the consequences of work performed, pursuant to said contract.

4.4 RIGHT TO AUDIT RECORDS

- 4.4.1 The Owner shall have the right to audit the books and records of a Contractor or any Subcontractor under any Contract or Subcontract to the extent that the books and records relate to the performance of the Contract or Subcontract.
- 4.4.2 Said books and records shall be maintained by the Contractor for a period of seven (7) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of seven (7) years from the date of final payment under the Subcontract.

ARTICLE 5: SUBCONTRACTORS

5.1 SUBCONTRACTING REQUIREMENTS

- 5.1.1 All contracts for the construction, reconstruction, alteration or repair of any public building (not a road, street or highway) shall be subject to the following provisions:
1. A contract shall be awarded only to a Bidder whose Bid is accompanied by a statement containing, for each Subcontractor category, the name and address (city or town and State only – street number and P.O. Box addresses not required) of the subcontractor whose services the Bidder intends to use in performing the Work and providing the material for such Subcontractor category.
 2. A Bid will not be accepted nor will an award of any Contract be made to any Bidder which, as the Prime Contractor, has listed itself as the Subcontractor for any Subcontractor unless:
 - A. It has been established to the satisfaction of the awarding Agency that the Bidder has customarily performed the specialty work of such Subcontractor category by artisans regularly employed by the Bidder's firm;
 - B. That the Bidder is duly licensed by the State to engage in such specialty work, if the State requires licenses; and
 - C. That the Bidder is recognized in the industry as a bona fide Subcontractor or Contractor in such specialty work and Subcontractor category.
- 5.1.2 The decision of the awarding Agency as to whether a Bidder who list itself as the Subcontractor for a Subcontractor category shall be final and binding upon all Bidders, and no action of any nature shall lie against any awarding agency or its employees or officers because of its decision in this regard.
- 5.1.3 After such a Contract has been awarded, the successful Bidder shall not substitute another Subcontractor for any Subcontractor whose name was set forth in the statement which accompanied the Bid without the written consent of the awarding Agency.

5.1.4 No Agency shall consent to any substitution of Subcontractors unless the Agency is satisfied that the Subcontractor whose name is on the Bidders accompanying statement:

- A. Is unqualified to perform the work required;
- B. Has failed to execute a timely reasonable Subcontract;
- C. Has defaulted in the performance on the portion of the work covered by the Subcontract; or
- D. Is no longer engaged in such business.

5.1.5 Should a Bidder be awarded a contract, such successful Bidder shall provide to the agency the taxpayer identification license numbers of such subcontractors. Such numbers shall be provided on the later of the date on which such subcontractor is required to be identified or the time the contract is executed. The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

5.2 PENALTY FOR SUBSTITUTION OF SUBCONTRACTORS

5.2.1 Should the Contractor fail to utilize any or all of the Subcontractors in the Contractor's Bid statement in the performance of the Work on the public bidding, the Contractor shall be penalized in the amount of (project specific amount*). The Agency may determine to deduct payments of the penalty from the Contractor or have the amount paid directly to the Agency. Any penalty amount assessed against the Contractor may be remitted or refunded, in whole or in part, by the Agency awarding the Contract, only if it is established to the satisfaction of the Agency that the Subcontractor in question has defaulted or is no longer engaged in such business. No claim for the remission or refund of any penalty shall be granted unless an application is filed within one year after the liability of the successful Bidder accrues. All penalty amounts assessed and not refunded or remitted to the contractor shall be reverted to the State.

*one (1) percent of contract amount not to exceed \$10,000

5.3 ASBESTOS ABATEMENT

5.3.1 The selection of any Contractor to perform asbestos abatement for State-funded projects shall be approved by the Office of Management and Budget, Division of Facilities Management pursuant to Chapter 78 of Title 16.

5.4 STANDARDS OF CONSTRUCTION FOR THE PROTECTION OF THE PHYSICALLY HANDICAPPED

5.4.1 All Contracts shall conform with the standard established by the Delaware Architectural Accessibility Board unless otherwise exempted by the Board.

5.5 CONTRACT PERFORMANCE

5.5.1 Any firm entering into a Public Works Contract that neglects or refuses to perform or fails to comply with its terms, the Agency may terminate the Contract and proceed to award a new Contract or may require the Surety on the Performance Bond to complete the Contract in accordance with the terms of the Performance Bond.

ARTICLE 6: CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

- 6.1 The Owner reserves the right to simultaneously perform other construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other Projects at the same site.
- 6.2 The Contractor shall afford the Owner and other Contractors reasonable opportunity for access and storage of materials and equipment, and for the performance of their activities, and shall connect and coordinate their activities with other forces as required by the Contract Documents.

ARTICLE 7: CHANGES IN THE WORK

- 7.1 The Owner, without invalidating the Contract, may order changes in the Work consisting of Additions, Deletions, Modifications or Substitutions, with the Contract Sum and Contract completion date being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Professional, as the duly authorized agent, the Contractor and the Owner.
- 7.2 The Contract Sum and Contract Completion Date shall be adjusted only by a fully executed Change Order.
- 7.3 The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor and the Architect. In all cases, this cost or credit shall be based on the 'DPE' wages required and the "invoice price" of the materials/equipment needed.
- 7.3.1 "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes direct salary plus customary fringe benefits (prevailing wage rates) and documented statutory costs such as workman's compensation insurance, Social Security/Medicare, and unemployment insurance (a maximum multiplier of 1.35 times DPE).
- 7.3.2 "Invoice price" of materials/equipment shall be defined to mean the actual cost of materials and/or equipment that is paid by the Contractor, (or subcontractor), to a material distributor, direct factory vendor, store, material provider, or equipment leasing entity. Rates for equipment that is leased and/or owned by the Contractor or subcontractor(s) shall not exceed those listed in the latest version of the "Means Building Construction Cost Data" publication.
- 7.3.3 In addition to the above, the General Contractor is allowed a fifteen percent (15%) markup for overhead and profit for additional work performed by the General Contractor's own forces. For additional subcontractor work, the Subcontractor is allowed a fifteen (15) percent overhead and profit on change order work above and beyond the direct costs stated previously. To this amount, the General Contractor will be allowed a mark-up not exceeding seven and one half percent (7.5%) on the subcontractors work. These mark-ups shall include all costs including, but not limited to: overhead, profit, bonds, insurance, supervision, etc. No markup is permitted on the work of the subcontractors subcontractor. No additional costs shall be allowed for changes related to the Contractor's onsite superintendent/staff, or project manager, unless a change in the work changes the project duration and is identified by the CPM schedule. There will be no other costs associated with the change order.

ARTICLE 8: TIME

- 8.1 Time limits, if any, are as stated in the Project Manual. By executing the Agreement, the Contractor confirms that the stipulated limits are reasonable, and that the Work will be completed within the anticipated time frame.
- 8.2 If progress of the Work is delayed at any time by changes ordered by the Owner, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions, unavoidable casualties or other causes beyond the Contractor's control, the Contract Time shall be extended for such reasonable time as the Owner may determine.
- 8.3 Any extension of time beyond the date fixed for completion of the construction and acceptance of any part of the Work called for by the Contract, or the occupancy of the building by the Owner, in whole or in part, previous to the completion shall not be deemed a waiver by the Owner of his right to annul or terminate the Contract for abandonment or delay in the matter provided for, nor relieve the Contractor of full responsibility.
- 8.4 **SUSPENSION AND DEBARMENT**
- 8.4.1 Per Section 6962(d)(14), Title 29, Delaware Code, "Any Contractor who fails to perform a public works contract or complete a public works project within the time schedule established by the Agency in the Invitation To Bid, may be subject to Suspension or Debarment for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the Project."
- 8.4.2 "Upon such failure for any of the above stated reasons, the Agency that contracted for the public works project may petition the Director of the Office of Management and Budget for Suspension or Debarment of the Contractor. The Agency shall send a copy of the petition to the Contractor within three (3) working days of filing with the Director. If the Director concludes that the petition has merit, the Director shall schedule and hold a hearing to determine whether to suspend the Contractor, debar the Contractor or deny the petition. The Agency shall have the burden of proving, by a preponderance of the evidence, that the Contractor failed to perform or complete the public works project within the time schedule established by the Agency and failed to do so for one or more of the following reasons: a) failure to supply the adequate labor supply ratio for the project; b) inadequate financial resources; or, c) poor performance on the project. Upon a finding in favor of the Agency, the Director may suspend a Contractor from Bidding on any project funded, in whole or in part, with public funds for up to 1 year for a first offense, up to 3 years for a second offense and permanently debar the Contractor for a third offense. The Director shall issue a written decision and shall send a copy to the Contractor and the Agency. Such decision may be appealed to the Superior Court within thirty (30) days for a review on the record."
- 8.5 **RETAINAGE**
- 8.5.1 Per Section 6962(d)(5) a.3, Title 29, Delaware Code: The Agency may at the beginning of each public works project establish a time schedule for the completion of the project. If the project is delayed beyond the completion date due to the Contractor's failure to meet their responsibilities, the Agency may forfeit, at its discretion, all or part of the Contractor's retainage.
- 8.5.2 This forfeiture of retainage also applies to the timely completion of the punchlist. A punchlist will only be prepared upon the mutual agreement of the Owner, Architect and Contractor. Once the punchlist is prepared, all three parties will by mutual agreement, establish a schedule for its completion. Should completion of the punchlist be delayed beyond the established date due to the Contractor's failure to meet their responsibilities,

the Agency may hold permanently, at its discretion, all or part of the Contractor's retainage.

ARTICLE 9: PAYMENTS AND COMPLETION

9.1 APPLICATION FOR PAYMENT

9.1.1 Applications for payment shall be made to Department of Natural Resources and Environmental Control Division of Fish & Wildlife, at Room B172, Richardson & Robbins Building, 89 Kings Highway, Dover, DE 19901 and marked Contract No. NAT201501/MISPILLION; Attention: Jeremy Ashe. There will be a five percent (5%) retainage on all Contractor's monthly invoices until completion of the project. This retainage may become payable upon receipt of all required closeout documentation, provided all other requirements of the Contract Documents have been met.

9.1.2 A date will be fixed for the taking of the monthly account of work done. Upon receipt of Contractor's itemized application for payment, such application will be audited, modified, if found necessary, and approved for the amount. Statement shall be submitted to the Owner.

9.1.3 Section 6516, Title 29 of the Delaware Code annualized interest is not to exceed 12% per annum beginning thirty (30) days after the "presentment" (as opposed to the date) of the invoice.

9.2 PARTIAL PAYMENTS

9.2.1 Any public works Contract executed by any Agency may provide for partial payments at the option of the Owner with respect to materials placed along or upon the sites or stored at secured locations, which are suitable for use in the performance of the contract.

9.2.2 When approved by the agency, partial payment may include the values of tested and acceptable materials of a nonperishable or noncontaminative nature which have been produced or furnished for incorporation as a permanent part of the work yet to be completed, provided acceptable provisions have been made for storage.

9.2.2.1 Any allowance made for materials on hand will not exceed the delivered cost of the materials as verified by invoices furnished by the Contractor, nor will it exceed the contract bid price for the material complete in place.

9.2.3 If requested by the Agency, receipted bills from all Contractors, Subcontractors, and material, men, etc., for the previous payment must accompany each application for payment. Following such a request, no payment will be made until these receipted bills have been received by the Owner.

9.3 SUBSTANTIAL COMPLETION

9.3.1 When the building has been made suitable for occupancy, but still requires small items of miscellaneous work, the Owner will determine the date when the project has been substantially completed.

9.3.2 If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and without terminating the Contract, the Owner may make payment of the balance due for the portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment that it shall not constitute a waiver of claims.

9.3.3 On projects where commissioning is included, the commissioning work as defined in the specifications must be complete prior to the issuance of substantial completion.

9.4 FINAL PAYMENT

- 9.4.1 Final payment, including the five percent (5%) retainage if determined appropriate, shall be made within thirty (30) days after the Work is fully completed and the Contract fully performed and provided that the Contractor has submitted the following closeout documentation (in addition to any other documentation required elsewhere in the Contract Documents):
- 9.4.1.1 Evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid,
- 9.4.1.2 An acceptable RELEASE OF LIENS,
- 9.4.1.3 Copies of all applicable warranties,
- 9.4.1.4 As-built drawings,
- 9.4.1.5 Operations and Maintenance Manuals,
- 9.4.1.6 Instruction Manuals,
- 9.4.1.7 Consent of Surety to final payment.
- 9.4.1.8 The Owner reserves the right to retain payments, or parts thereof, for its protection until the foregoing conditions have been complied with, defective work corrected and all unsatisfactory conditions remedied.

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

- 10.1 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take all reasonable precautions to prevent damage, injury or loss to: workers, persons nearby who may be affected, the Work, materials and equipment to be incorporated, and existing property at the site or adjacent thereto. The Contractor shall give notices and comply with applicable laws ordinances, rules regulations, and lawful orders of public authorities bearing on the safety of persons and property and their protection from injury, damage, or loss. The Contractor shall promptly remedy damage and loss to property at the site caused in whole or in part by the Contractor, a Subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.
- 10.2 The Contractor shall notify the Owner in the event any existing hazardous material such as lead, PCBs, asbestos, etc. is encountered on the project. The Owner will arrange with a qualified specialist for the identification, testing, removal, handling and protection against exposure or environmental pollution, to comply with applicable regulation laws and ordinances. The Contractor and Architect will not be required to participate in or to perform this operation. Upon completion of this work, the Owner will notify the Contractor and Architect in writing the area has been cleared and approved by the authorities in order for the work to proceed. The Contractor shall attach documentation from the authorities of said approval.
- 10.3 As required in the Hazardous Chemical Information Act of June 1984, all vendors supplying any materials that may be defined as hazardous, must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a warning caution on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in any foreseeable emergency situation. Material Safety Data Sheets must be provided directly to the Owner along with the shipping slips that include those products.

- 10.4 The Contractor shall certify to the Owner that materials incorporated into the Work are free of all asbestos. This certification may be in the form of Material Safety Data Sheet (MSDS) provided by the product manufacturer for the materials used in construction, as specified or as provided by the Contractor.

ARTICLE 11: INSURANCE AND BONDS

- 11.1 The Contractor shall carry all insurance required by law, such as Unemployment Insurance, etc. The Contractor shall carry such insurance coverage as they desire on their own property such as a field office, storage sheds or other structures erected upon the project site that belong to them and for their own use. The Subcontractors involved with this project shall carry whatever insurance protection they consider necessary to cover the loss of any of their personal property, etc.
- 11.2 Upon being awarded the Contract, the Contractor shall obtain a minimum of two (2) copies of all required insurance certificates called for herein, and submit one (1) copy of each certificate, to the Owner, within 20 days of contract award.
- 11.3 Bodily Injury Liability and Property Damage Liability Insurance shall, in addition to the coverage included herein, include coverage for injury to or destruction of any property arising out of the collapse of or structural injury to any building or structure due to demolition work and evidence of these coverages shall be filed with and approved by the Owner.
- 11.4 The Contractor's Property Damage Liability Insurance shall, in addition to the coverage noted herein, include coverage on all real and personal property in their care, custody and control damaged in any way by the Contractor or their Subcontractors during the entire construction period on this project.
- 11.5 Builders Risk (including Standard Extended Coverage Insurance) on the existing building during the entire construction period, shall not be provided by the Contractor under this contract. The Owner shall insure the existing building and all of its contents and all this new alteration work under this contract during entire construction period for the full insurable value of the entire work at the site. Note, however, that the Contractor and their Subcontractors shall be responsible for insuring building materials (installed and stored) and their tools and equipment whenever in use on the project, against fire damage, theft, vandalism, etc.
- 11.6 Certificates of the insurance company or companies stating the amount and type of coverage, terms of policies, etc., shall be furnished to the Owner, within 20 days of contract award.
- 11.7 The Contractor shall, at their own expense, (in addition to the above) carry the following forms of insurance:

11.7.1 Contractor's Contractual Liability Insurance

Minimum coverage to be:

Bodily Injury	\$500,000	for each person
	\$1,000,000	for each occurrence
	\$1,000,000	aggregate
Property Damage	\$500,000	for each occurrence
	\$1,000,000	aggregate

11.7.2 Contractor's Protective Liability Insurance

Minimum coverage to be:

Bodily Injury	\$500,000 \$1,000,000 \$1,000,000	for each person for each occurrence aggregate
Property Damage	\$500,000 \$500,000	for each occurrence aggregate

11.7.3 Automobile Liability Insurance

Minimum coverage to be:

Bodily Injury	\$1,000,000 \$1,000,000	for each person for each occurrence
Property Damage	\$500,000	per accident

11.7.4 Prime Contractor's and Subcontractors' policies shall include contingent and contractual liability coverage in the same minimum amounts as 11.7.1 above.

11.7.5 Workmen's Compensation (including Employer's Liability):

11.7.5.1 Minimum Limit on employer's liability to be as required by law.

11.7.5.2 Minimum Limit for all employees working at one site.

11.7.6 Certificates of Insurance must be filed with the Owner guaranteeing fifteen (15) days prior notice of cancellation, non-renewal, or any change in coverages and limits of liability shown as included on certificates.

11.7.7 Social Security Liability

11.7.7.1 With respect to all persons at any time employed by or on the payroll of the Contractor or performing any work for or on their behalf, or in connection with or arising out of the Contractor's business, the Contractor shall accept full and exclusive liability for the payment of any and all contributions or taxes or unemployment insurance, or old age retirement benefits, pensions or annuities now or hereafter imposed by the Government of the United States and the State or political subdivision thereof, whether the same be measured by wages, salaries or other remuneration paid to such persons or otherwise.

11.7.7.2 Upon request, the Contractor shall furnish Owner such information on payrolls or employment records as may be necessary to enable it to fully comply with the law imposing the aforesaid contributions or taxes.

11.7.7.3 If the Owner is required by law to and does pay any and/or all of the aforesaid contributions or taxes, the Contractor shall forthwith reimburse the Owner for the entire amount so paid by the Owner.

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.1 The Contractor shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed, and shall correct any Work found to be not in accordance with the requirements of the Contract Documents within a period of two years from the date of Substantial Completion, or by terms of an applicable special warranty required by the Contract Documents. The provisions of this Article apply to

work done by Subcontractors as well as to Work done by direct employees of the Contractor.

- 12.2 At any time during the progress of the work, or in any case where the nature of the defects shall be such that it is not expedient to have them corrected, the Owner, at their option, shall have the right to deduct such sum, or sums, of money from the amount of the contract as they consider justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.1 CUTTING AND PATCHING

- 13.1.1 The Contractor shall be responsible for all cutting and patching. The Contractor shall coordinate the work of the various trades involved.

13.2 DIMENSIONS

- 13.2.1 All dimensions shown shall be verified by the Contractor by actual measurements at the project site. Any discrepancies between the drawings and specifications and the existing conditions shall be referred to the Owner for adjustment before any work affected thereby has been performed.

13.3 LABORATORY TESTS

- 13.3.1 Any specified laboratory tests of material and finished articles to be incorporated in the work shall be made by bureaus, laboratories or agencies approved by the Owner and reports of such tests shall be submitted to the Owner. The cost of the testing shall be paid for by the Contractor.
- 13.3.2 The Contractor shall furnish all sample materials required for these tests and shall deliver same without charge to the testing laboratory or other designated agency when and where directed by the Owner.

13.4 ARCHAEOLOGICAL EVIDENCE

- 13.4.1 Whenever, in the course of construction, any archaeological evidence is encountered on the surface or below the surface of the ground, the Contractor shall notify the authorities of the Delaware Archaeological Board and suspend work in the immediate area for a reasonable time to permit those authorities, or persons designated by them, to examine the area and ensure the proper removal of the archaeological evidence for suitable preservation in the State Museum.

13.5 GLASS REPLACEMENT AND CLEANING

- 13.5.1 The General Contractor shall replace without expense to the Owner all glass broken during the construction of the project. If job conditions warrant, at completion of the job the General Contractor shall have all glass cleaned and polished.

13.6 WARRANTY

- 13.6.1 For a period of two (2) years from the date of substantial completion, as evidenced by the date of final acceptance of the work, the contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect of equipment, material or workmanship performed by the contractor or any of his subcontractors or suppliers. However, manufacturer's warranties and guarantees, if for a period longer than two (2) years, shall take precedence over the above warranties. The contractor shall

remedy, at his own expense, any such failure to conform or any such defect. The protection of this warranty shall be included in the Contractor's Performance Bond.

ARTICLE 14: TERMINATION OF CONTRACT

- 14.1 If the Contractor defaults or persistently fails or neglects to carry out the Work in accordance with the Contract Documents or fails to perform a provision of the Contract, the Owner, after seven days written notice to the Contractor, may make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Alternatively, at the Owner's option, and the Owner may terminate the Contract and take possession of the site and of all materials, equipment, tools, and machinery thereon owned by the Contractor and may finish the Work by whatever method the Owner may deem expedient. If the costs of finishing the Work exceed any unpaid compensation due the Contractor, the Contractor shall pay the difference to the Owner.
- 14.2 "If the continuation of this Agreement is contingent upon the appropriation of adequate state, or federal funds, this Agreement may be terminated on the date beginning on the first fiscal year for which funds are not appropriated or at the exhaustion of the appropriation. The Owner may terminate this Agreement by providing written notice to the parties of such non-appropriation. All payment obligations of the Owner will cease upon the date of termination. Notwithstanding the foregoing, the Owner agrees that it will use its best efforts to obtain approval of necessary funds to continue the Agreement by taking appropriate action to request adequate funds to continue the Agreement."

END OF GENERAL REQUIREMENTS

EMPLOYEE DRUG TESTING REPORT FORM

Period Ending: _____

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds submit Testing Report Forms to the Owner no less than quarterly.

Project Number: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

Number of employees who worked on the jobsite during the report period: _____

Number of employees subject to random testing during the report period: _____

Number of Negative Results _____ Number of Positive Results _____

Action taken on employee(s) in response to a failed or positive random test:

Authorized Representative of Contractor/Subcontractor: _____
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____
(signature)

Date: _____

**EMPLOYEE DRUG TESTING
REPORT OF POSITIVE RESULTS**

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds to notify the Owner in writing of a positive random drug test.

Project Number: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

Name of employee with positive test result: _____

Last 4 digits of employee SSN: _____

Date test results received: _____

Action taken on employee in response to a positive test result:

Authorized Representative of Contractor/Subcontractor: _____
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____
(signature)

Date: _____

This form shall be sent by mail to the Owner within 24 hours of receipt of test results.

Enclose this test results form in a sealed envelope with the notation "Drug Testing Form – DO NOT OPEN" on the face thereof and place in a separate mailing envelope.

SECTION 01 71 13 – MOBILIZATION/DEMobilIZATION

PART 1 - GENERAL

1.1 RELATED SECTIONS

- A. Section 31 23 23 Sand Fill
- B. Section 35 31 23 Stone Dike and Groins

1.2 GENERAL

- A. This item shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various items on the project site.
- B. DNREC will provide a staging area and material stockpile area at Swain's Beach; its limits shall be as shown on the drawings. All utilities for the Contractor's staging area shall be provided by the Contractor directly. No separate payment shall be made for any item required for the Contractor to enclose and set up his operational areas. Contractor shall restore the site to its original conditions, to the satisfaction of DNREC upon completion of the contract work; grassing is required as a part of the restoration. Prior to any work commencing, the Contractor and DNREC shall document the condition of existing area and roads with pictures and videos. No separate payment shall be made for any restoration work.

1.3 CONSTRUCTION LAYOUT

- A. Contractor to provide all survey layout of all work to be constructed in this project so that all work is located and sized in conformance with the plans and specifications provided.

1.4 TEMPORARY FACILITIES

- A. Contractor shall furnish for the duration of the project:
 - 1. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
 - 2. Field Trailers: To be 14' x 64' to accommodate needs of the construction personnel office activities and to accommodate project meetings. Keep office clean and orderly. Furnish and equip offices as follows:
 - a. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - b. Conference room of sufficient size to accommodate meetings of 20 individuals. Provide electrical power and data (internet) service and 120-V ac duplex receptacles, with not less than one receptacle on each wall. Furnish room with conference table, chairs, and 4' square marker boards.

- c. Offices for: Resident Engineer (1), Design team (2), and Contractor Personnel. Each office shall have two desks, one table, and three chairs. Provide electrical power and data (jacks) on each wall.
 - d. Drinking water and private toilets.
 - e. Coffee machine and supplies.
 - f. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 degrees F.
 - g. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
 - h. Mini refrigerator.
 - i. Fire extinguisher.
3. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
- a. Store combustible materials apart from building.

PART 2 - METHOD OF MEASUREMENT

2.1 SUM

- A. The sum of Mobilization/Demobilization shall be limited to a maximum of 10% of the total contract bid.

PART 3 - BASIS OF PAYMENT

3.1 PARTIAL PAYMENTS

- A. Partial payments for the sum of Mobilization/Demobilization will be made as follows:

<u>Stages of Work</u>	<u>Percent of the Price to be Paid</u>
Mobilization	60%
Demobilization	40%

3.2 PAYMENTS

- A. Payment for Mobilization/Demobilization, Construction Layout, and Temporary Facilities will be made at the contract lump sum price. The price shall be full compensation for furnishing all materials and for providing all of the required items, and for all labor, equipment, fees, tools and incidentals necessary to complete the work from Notice to Proceed through the completion of the work.
- B. Payment will be made under:

Item 1	Mobilization and Demobilization	Per Lump Sum
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-- End of Section --

SECTION 31 23 23 – SAND FILL

PART 1 - GENERAL

1.1 SUMMARY

- A. The work covered by this section includes the furnishing and placement of sand fill, obtained from offsite borrow sources, for beach nourishment as shown on the Contract Drawings.

1.2 RELATED SECTIONS

- A. Section 31 34 19 Geotextiles
- B. Section 35 31 23 Stone Dike and Groins

1.3 REFERENCES

- A. 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.
- B. Unless otherwise indicated the most recent edition of the publication, including any revisions, shall be used.
- C. Delaware Department of Transportation (DelDOT) Standard Specifications for Road and Bridge Construction
- D. American Society For Testing And Materials (ASTM)

ASTM D 422 (2007e2) Particle-Size Analysis of Soils

ASTM D 2487 (2011) Classification of Soils for Engineering Purposes
(Unified Soil Classification System)

1.4 SUBMITTALS

A. Fill Placement Plan

- 1. Prior to any work associated with the land reclamation effort, the Contractor shall submit a fill placement plan to the Engineer for approval. The plan shall include the following:
 - a. Method and equipment for transporting the sand fill from the borrow site(s) to the nourishment area
 - b. Method and equipment for placing the sand fill within the nourishment area.
 - c. Sequencing of fill placement detailing location of placement, lift thickness, and progression of fill.

- B. Quality Control Plan: Procedures to be implemented to assure that soils to be placed as fill comply with requirement specified herein. The Contractor shall sample the fill material

every 5,000 cubic yards for compliance with the gradation requirements established in this Section. Non-conforming test results shall be reported immediately to the Engineer.

- C. Testing Agency Qualifications: The Contractor shall retain an independent testing agency qualified according to ASTM E 329 and ASTM E 699 to conduct soils testing.
- D. Fill certification: The Contractor shall certify that all fill material is uncontaminated as defined under 40 CFR 230.3.

PART 2 - PRODUCTS

2.1 BEACH FILL MATERIAL

- A. The beach fill material shall be classified as SP or SW in accordance with ASTM D 2487 and have a fines content (percent passing #200 sieve) less than 10% by weight when tested in accordance with ASTM D 422, after placement.
- B. The beach fill material shall have the following gradation per DeIDOT Standard Specifications SECTION 804 FINE AGGREGATE as shown below.

Sieve Size	Percent Passing
3/8" (9.5 mm)	100
No. 4 (4.75 mm)	95 - 100
No. 50 (0.300 mm)	5 - 30
No. 100 (0.150 mm)	1 - 10
No. 200 (0.075 mm)	0 - 4

- C. All fill material shall be uncontaminated. The use of contaminated fill as defined under 40 CFR 230.3 is prohibited.

PART 3 - EXECUTION

3.1 PLACEMENT

- A. General: The beach fill material shall be placed by hydraulic methods. The Contractor shall shape the fill to achieve the grades shown on the contract Drawings using either mechanical methods. Fill placement shall comply with the sequence of construction shown on the drawings. Onsite stockpiling of beach fill material on land shall comply with DNREC erosion and sediment control requirements.
- B. North Terminal Groin, South Terminal Groin and Stone Dike Enhancement: The beach fill shall not be placed until construction of the North Terminal Groin, South Terminal

Groin and Stone Dike Enhancement has been completed and DNREC has accepted the work.

- C. Groins A through C and Optional Groins D through F Placement: After the beach fill has been installed, the inside groins shall be constructed to the dimensions and elevations shown on the drawings.
- D. Final Grading: After the beach fill has been installed and stabilization has been achieved, the site shall be graded to the elevations shown on the Drawings.
- E. Compaction of the beach fill shall not be required.

3.2 QUALITY CONTROL

- A. Test fill material gradation for all materials in accordance with ASTM D 422. Sample and test a minimum of one test per every 5,000 cubic yards placed.

3.3 TOLERANCES

- A. The thickness of the beach fill shall be plus or minus 3 inches from the specified thickness.
- B. Ground surfaces after final grading shall be within 1.0 inch of the grades shown on the Drawings.

3.4 CONTRACTOR QUALITY CONTROL

- A. The following describes the minimum inspection and testing required in the Contractor's Quality Control (CQC) Plan and Program for the work of this section and is for CQC only. The implementation of the Contractor Quality Control Program does not relieve the Contractor from the responsibility to provide the work in accordance with the Contract Documents, applicable codes, regulations, and governing authorities. The CQC Plan and Program shall include, but not be limited to, the following testing and inspection elements. These elements are provided as a minimum starting point for the Contractor to use to generate his complete CQC Program.

3.5 QUALITY CONTROL: SUPERVISION, INSPECTION, AND RECORDS

- A. The Contractor shall retain an independent Testing Agency to perform fill sampling and testing. The work performed by the testing agency shall be supervised by a registered geotechnical engineer.
- B. Test material gradation for all fill materials in accordance with ASTM D 422. Sample and test a minimum of one test per every 5,000 cubic yards placed.
- C. A complete tabulation of all test results shall be certified by the independent Testing Agency and shall be delivered to DNREC within 14 days of completion.

PART 4 - COMPENSATION

4.1 MEASUREMENT

- A. Sand Beachfill shall be measured on a cubic yard basis by the volume delivered to the site and placed in accordance with the Contract Documents less any quantities placed outside of placement limits and tolerances. The Contractor shall perform testing of the material and provide computations of dry density and moisture content. The volume of the material shall be calculated using the test results and the weights from quarry tickets at the point of loading.
1. When vessel displacement is used for the determination of weights, the following procedure will be used for the determination. Each vessel will be accurately measured and will be fitted with gages graduated in tenths of a foot. The gages will be located on each corner of the vessel, near the lower end of the rake, with two additional gages amid ship, if deemed necessary by the Engineer. Fore and aft displacement due to load will not differ more than 10 percent from their mean for the determination of tonnage, except in unavoidable cases. All gage readings will be made in still water. At the option of the Engineer, tonnage determinations may be made at the loading point by using change in gage readings from light marks to load marks, or at the unloading point by using change in gage readings from load marks to light marks. All vessels shall be pumped dry (within the limits of the pump suction) before each gaging, and limbers shall be kept open so that any water in the vessel will flow freely to the pump suction. The weight of the water displaced at the point of gaging will be based on approved hydrometer readings of the water assuming that water weighing 62.4 pounds per cubic foot has a specific gravity of 0.9975.
 2. If shipments are made by railroad from the quarry, certified railroad weights will be accepted. If shipments are made by truck from the quarry, each truckload of sand shall be weighed on scales, which have been carefully verified by a properly accredited official. One original report and duplicate copy of weights of each carload or truckload, certified by the weigher and prepared in ink or indelible pencil, shall be furnished to the Engineer. The report shall show gross, tare, and net weight of each carload or truckload. If there is, in the opinion of the Engineer or his representative, any doubt as to the quantity of stone on any car or truck, as indicated by the weight determined at the point of shipment, due to loss in transit or other causes, the Contractor shall at his expense have such car or truck reweighed in the presence of the Engineer or his representative on scales which have been verified by a properly accredited official. Should there be a difference in weight of material at the point of shipment and at the point of destination, the weight at the latter point will be accepted as correct and used for payment. The cost of meeting the foregoing requirements shall be included in the contract price.
- B. Acceptance of the sand beachfill shall be made after surveys are performed of the placed material. Cross-sections of the in-place material shall be taken after the placement on a 100 foot spacing along the baseline of construction. No allowance will be made for settlement that occurs during sand beachfill placement.

- C. Surveys for acceptance of the beachfill shall conform to the requirements of National Map Standards for 1' = 50' survey.

4.2 PAYMENT

- A. Beachfill: Payment for Sand Beachfill, complete in place, shall be included in the Unit Price Bid per cubic yard under Item No. 6 on the Bid Form. This price shall include all furnishing, transporting, placing, grading, and surveying.

The above prices shall include all the work described in this Section and shown on the Contract Drawings including all labor, materials, services, and equipment necessary to complete the work in every respect to the satisfaction of the Engineer.

-- End of Section --

SECTION 31 34 19 – GEOTEXTILES

PART 1 - GENERAL

1.1 SCOPE

- A. The work covered by this Section includes the furnishing of all material and equipment and the performing of all labor for the placement of the geotextile as required by the Contract Documents.

1.2 RELATED SECTIONS

- A. Section 31 23 23 Sand Fill
- B. Section 35 31 23 Stone Dike and Groins

1.3 STANDARDS AND REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. Unless otherwise indicated the most recent edition of the publication, including any revisions, shall be used.
- C. American Association of State Highway Transportation Officials (AASHTO)
AASHTO M288 (2006) Standard Specification for Geotextile Specification for Highway Applications
- D. American Society for Testing and Materials (ASTM)
 - ASTM D 3786 (2009) Standard Test Method for Bursting Strength Textile Fabrics – Diaphragm Bursting Strength Tester Method
 - ASTM D 4354 (2009) Standard Practice for Sampling of Geosynthetics for Testing
 - ASTM D 4355 (2007) Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
 - ASTM D 4491 (2009) Standard Test Methods for Water Permeability of Geotextiles by Permittivity
 - ASTM D 4533 (2009) Standard Test Method for Trapezoid Tearing Strength of Geotextiles
 - ASTM D 4632 (2008) Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
 - ASTM D 4751 (2004) Standard Test Method for Determining the Apparent Opening Size of Geotextile

ASTM D 4595	(2009) Standard Test Method for Tensile Properties of Geotextiles by Wide-Width Strip Method
ASTM D 4833	(2007) Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
ASTM D 4873	(2009) Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
ASTM D 5261	(2010) Standard Test Method for Measuring Mass per Unit Area of Geotextiles

- E. U.S. Army Corps of Engineers (USACE)
USACE, 1986, *Geotextiles Used as Filters*, Civil Works Construction Guide Specification, CW-02215

1.4 SUBMITTALS

- A. General: Comply with the relevant provisions of the Contract Documents.
- B. Prior to delivery of Geotextile to the job site, the Contractor shall submit the following certified test reports to DNREC for approval:
 - 1. AASHTO Survivability Class (AASHTO M288)
 - 2. Apparent Opening Size (ASTM D 4751)
 - 3. Grab Tensile Strength and Elongation (ASTM D 4632)
 - 4. Mullen Burst Strength (ASTM D 3786)
 - 5. Permittivity (ASTM D 4491)
 - 6. Puncture Strength (ASTM D 4833)
 - 7. Sewn Seam Strength, if used (ASTM D 4632)
 - 8. Trapezoidal Tear Strength (ASTM D 4533)
 - 9. U.V. Resistance (ASTM D 4355)
 - 10. Wide Width Tensile Strength – Machine Direction (ASTM D 4595)
 - 11. Wide Width Tensile Strength – Cross-machine Direction (ASTM D 4595)
- C. Manufacturer's recommendations for seaming and/or lapping joints.
- D. Samples: Representative sample of each type of geotextile showing the name of the manufacturer, brand name, type of fiber shall be submitted.
- E. The certification(s) shall show the appropriate ASTM test(s) for each material, the test results, and a statement that the material meets the specifications.

1.5 QUALITY CONTROL

- A. DNREC shall examine all the fabric rolls for damage and defect prior to installation. Any roll found to be damaged and/or defective shall be removed from the site and shall be replaced by an acceptable roll.
- B. Sewn seam strength, if used, shall be verified based on testing of either conformance samples obtained using Procedure A of ASTM D 4354, or based on manufacturer's certifications and testing of quality assurance samples obtained using Procedure B of ASTM D 4354. A lot size for conformance or quality assurance sampling shall be considered to be the shipment quantity of the given product or a truckload of the given product, whichever is smaller.

1.6 DELIVERY AND STORAGE

- A. Geotextile labeling, shipment, and storage shall follow ASTM D 4873. Product labels shall clearly show the manufacturer or supplier name, style name, roll number, length and width of the roll.
- B. Each geotextile roll shall be wrapped with a material that will protect the geotextile from damage due to shipment, water, sunlight, and contaminants.
- C. Geotextile shall be stored in areas where water cannot accumulate, elevated off the ground, and protected from conditions that will affect the properties or performance. Outdoor storage shall not be for periods that exceed the manufacturer's recommendations, or for two months, whichever is less.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials: All materials specified shall be applied as per the Manufacturer's printed instructions and recommendations or as directed by the Engineer.
- B. Unapproved Materials:
 - 1. Any work in which unapproved materials are used shall be performed at the Contractor's risk and will be considered unacceptable, unauthorized, and will not be paid for and may require removal.

2.2 GEOTEXTILE

- A. The geotextile shall be manufactured with fibers consisting of long-chain synthetic polymers composed of at least 95% by weight polyolefins or polyesters. They shall form a stable network such that filaments or yarns retain their dimensional stability relative to each other, including selvages. The geotextile shall be free of any chemical treatment or coating which reduces permeability and shall be inert to chemicals commonly found in soil.
- B. Woven slit film geotextiles will not be allowed.

- C. The geotextile materials shall conform to AASHTO M 288, Class 1 and shall equal or exceed the minimum (or maximum, if noted) average roll values (MARVs) specified below.

Physical Property	Test Value	Test Method
Survivability Class	Class 1 (nonwoven) Class 2 (woven monofilament)	AASHTO M288
Mass Per Unit Area (Nonwoven Geotextiles Only)	5 oz/yd ²	ASTM D 5261
Apparent Opening Size (max.)	0.425mm	ASTM D 4751
Permittivity	0.15 sec-1	ASTM D 4491
Percent Open Area (woven geotextile only)	4%	CWO-22125
Porosity (nonwoven geotextiles only)	50%	
UV Resistance	70% strength retained for all classes @ 500 hours	ASTM D 4355
Puncture	140 lbs	ASTM D4833
Grab Tensile Strength	300 lbs	ASTM D4632
Grab Tensile Elongation	12%	ASTM D4632
Wide Width Tensile Strength - Machine Direction	400 lbs/inch	ASTM D4595
Wide Width Tensile Strength – Cross Machine Direction	400 lbs/inch	ASTM D4595
Mullen Burst Strength	750 psi	ASTM D3786
Trapezoidal Tear	150 lbs	ASTM D4533

- D. Geotextile shall have a minimum roll width of 12 feet.
- E. The geotextile shall be delivered to the job site in its original manufacturer's container(s). Each roll shall be individually wrapped in a protective wrapping which shall protect the fabric from ultraviolet radiation and from abrasion due to shipping and handling and to avoid moisture pick up. Materials exhibiting wetness, disintegration, decomposition, and/or abrasion due to shipping and handling will be rejected and shall be removed from the job site immediately, at the Contractor's cost.
- F. Installation, handling, and storage of geotextile fabric shall be in accordance with the manufacturer's recommendations or DNREC's direction.

2.3 ANCHORS

- A. Geotextile Anchors: Shall be either: Commercially available or manufactured 12 inch long by 1/8 inch diameter galvanized steel pins placed through the center of 1 inch diameter by 1/8 inch thick galvanized steel washers.

PART 3 - EXECUTION

3.1 GEOTEXTILE PLACEMENT

- A. Surface Preparation: Surface to receive the geotextile shall be prepared to a relatively smooth condition free of obstructions, sharp objects, stumps, and debris that could damage the geotextile during installation.
- B. Installation: Fabric shall be placed with the warp direction roll length oriented parallel to the fill direction. All geotextile placed underwater shall be weighted to prevent floating and to maintain its position during rock placement. Geotextile placed above water shall be secured by anchor pins or rock. The geotextile shall be extended a minimum of 1 foot past the outboard limits of the rock structures.
- C. Joints: geotextile joints shall be made by either overlapping or seaming:
 - 1. Overlap: The geotextile shall be overlapped at all longitudinal and transverse joints a minimum of 3 feet. The geotextile shall be placed so that the preceding roll overlaps the following roll in the direction the fill material is being spread and upslope geotextile sheets shall be overlapped over downslope sheets.
 - 2. Seams: Seams shall develop 90% of the specified grab tensile strength when tested in accordance with ASTM D 4632. All seams shall be subject to the approval of the COPR.
- D. Protection: No mechanical equipment shall be permitted directly on the fabric surface.

3.2 CONTRACTOR QUALITY CONTROL

- A. The following describes the minimum inspection and testing required in the Contractor's Quality Control (CQC) Plan and Program for the work of this section and is for CQC only. The implementation of the Contractor Quality Control Program does not relieve the Contractor from the responsibility to provide the work in accordance with the Contract Documents, applicable codes, regulations, and governing authorities. The CQC Plan and Program shall include, but not be limited to, the following testing and inspection elements. These elements are provided as a minimum starting point for the Contractor to use to generate his complete CQC Program.

3.3 QUALITY CONTROL: SUPERVISION, INSPECTION, AND RECORDS

- A. Contractor is responsible for insuring that all geotextile is placed in accordance with the manufacturer's recommendation and project specifications, without rips and tears and with the proper joint laps or sewn seams.

PART 4 - COMPENSATION

4.1 MEASUREMENT

- A. Geotextile shall be measured on a square yard basis for the surface area covered. No separate measurement shall be made for areas included in overlap or seams or for areas wasted or lost.

4.2 PAYMENT

- A. Payment for geotextile, complete in place, shall be made at the Unit Price Bid per square yard under Item No. 2 on the Bid Form. This price shall include all surface preparation, furnishing, and placement. The above prices shall include all the work described in this Section and shown on the Contract Drawings including all labor, material, services, and equipment necessary to complete the work in every respect to the satisfaction of DNREC.

-- End of Section --

SECTION 35 31 23 STONE DIKE AND GROINS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. The work covered by this section includes the furnishing of all transportation, labor, equipment, materials, and incidentals to complete the construction of stone for dikes and groins as shown on the Contract Drawings or specified herein. The words stone, rock and riprap used in this section are interchangeable and shall mean one and the same material. The work shall include:

1. North Terminal Groin
2. South Terminal Groin
3. Rehabilitation of Existing Stone Dike
4. Interior Groins A through C
5. Interior Groins D through F (Optional)

1.02 RELATED SECTIONS

- A. Section 31 23 23 Sand Fill
- B. Section 31 34 19 Geotextiles

1.03 REFERENCES

- A. 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.
- B. Unless otherwise indicated the most recent edition of the publication, including any revisions, shall be used.
- C. Delaware Department of Transportation (DelDOT), Specifications for Road and Bridge Construction, August 2001.
- D. American Society For Testing And Materials (ASTM)
- | | |
|------------|---|
| ASTM C 88 | (2013) Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate |
| ASTM C 97 | (2015) Absorption and Bulk Specific Gravity of Dimension Stone |
| ASTM C 127 | (2015) Relative Density (Specific Gravity) and Absorption of Coarse Aggregate |
| ASTM C 295 | (2012) Petrographic Examination of Aggregates for Concrete |

ASTM C 535 (2012) Resistance to Degradation of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

E. U.S. Army Corps Of Engineers (USACE)

EM 1110-2-1096 Laboratory Soils Testing

EM 1110-2-2302 Construction with Large Stone

CRD-C 144-73 Method of Testing Stone for Resistance to Freezing and Thawing

1.04 SUBMITTALS

- A. Prior to construction, the Contractor shall submit test results from a certified laboratory, which demonstrate that all rock products meet the specified gradation, sulfate soundness, Los Angeles abrasion, petrography, absorption, and specific gravity requirements. Test results shall be dated within 90 days of the date submitted.
- B. The Contractor shall submit his proposed method of construction, to include the sequence of rock placement, methods of placement, and equipment to be used during each construction phase, to DNREC for approval
- C. The Contractor shall submit one or more samples of rock material from each distinctive stratum, bed, or change of material type in the quarry. A sufficient number of samples shall be furnished to adequately represent the whole quarry or that part of the quarry from which the material will be obtained.
- D. A copy of the records of inspections and reports of operations shall be submitted to DNREC.

PART 2 - PRODUCTS

2.01 STONE RIPRAP MATERIAL

- A. General: Riprap shall consist of fresh, sound, hard, dense, durable stone of crystalline igneous or metamorphic rock which shall be separated from bedrock by quarrying. No sedimentary rock, schistose rock or any highly foliated rock will be acceptable. Rock shall be free of seams and thin layers of soft, decomposed, weak, or water-soluble materials.

Armor Stone: Riprap shall be Delaware Department of Transportation (DelDOT) Class R-7. This rock shall have a maximum size of 30 inches, 15 to 50 percent smaller than 18 inches, and 0 to 15 percent smaller than 9 inches.

Core Stone: Riprap shall be Delaware Department of Transportation (DelDOT) Class R-4. This rock shall have a maximum size of 12 inches, 15 to 50 percent smaller than 6 inches, and 0 to 15 percent smaller than 3 inches.

- B. Size and Shape of Stone: Riprap shall be furnished in blocky and angular shapes, with its greatest dimension not greater than three times its least dimension. Flat

stones, slabs, boulders, and parts of boulders will be rejected. Not more than 5% by weight of clean spalls resulting from loading and shipment will be allowed in any one vessel.

- C. Petrography: Stone shall be subjected to petrographic and x-ray diffraction analysis in accordance with ASTM C 295. Rock shall be fresh, interlocking crystalline structure, free of objectionable material such as expansive clays.

- D. Evaluation Testing: Rock shall meet the following test criteria:

Property	Test Method	Test Value
Specific Gravity	ASTM C 97	2.65 minimum
Absorption	ASTM C 127	Less than 2%
Abrasion	ASTM C 535	Less than 20% loss for 500 revolutions
Sulfate Soundness	ASTM C 88	Less than 18% loss for 5 cycles
Freezing and Thawing	CRD-C 144-73	Less than 10% loss for 12 cycles

2.02 SOURCES OF RIPRAP

- A. The Contractor may utilize one or more sources of riprap. The Contractor shall provide documentation that rock from these sources meets the requirements of these specifications. DNREC reserves the right to reject stone from sources that does not meet these specifications. It is the Contractor's responsibility to determine that sources can produce the specified quantity and gradation of riprap.
- B. The sources from which the Contractor proposes to obtain armor stone and quarry run required for the features covered in these specifications shall be selected and identified to DNREC well in advance of the time when the materials will be required in the work, a minimum of 60 days. Suitable samples of the proposed stone shall be submitted for testing and approval of the quality of the rock, thirty (30) days prior to delivery of any such material to the site of the work. The Contractor shall furnish DNREC at least five (5) days advance notice of the time and place at which samples will be selected in order that at his option, DNREC may have a representative present during the sampling. All test samples shall be obtained by the Contractor and delivered at his expense to points designated by DNREC, thirty (30) days in advance of the time when delivery of the stone to the project is first expected to begin.
- C. The Contractor shall submit one or more samples of material from each distinctive stratum, bed, or change of material type in the quarry. A sufficient number of samples shall be furnished to adequately represent the whole quarry or that part of the quarry from which the material will be obtained. A sample for approval as armor stone shall consist of the following: a minimum of 50 pounds of crushed stone, 3 inches maximum size to 1 inch minimum size; and, a minimum of 5 pieces of rock ranging from 50 to 100 pounds each. Where stockpiles of the material produced are available, the crushed aggregate may be obtained from the stockpile. The riprap will be obtained from the expected production face area within the quarry that is being tested. In non-producing quarries with exposed faces where stockpiles of processed material are not available, samples shall consist of not less than 25 pounds from each distinctive stratum or bed with no pieces weighing less than 1 pound. If it is proposed to furnish rock from more than one quarry, samples, as required above, shall be furnished from each quarry. The samples shall be

suitably identified by numbers and quarry name. Submittal of samples shall be made by letter, in triplicate, setting forth sample designations, name of quarry, ownership of quarry, location of samples from within the quarry, method of sampling and, if available, record and method of previous tests, geologic descriptions, and history of use in marine construction. In the event the Contractor proposes to furnish rock from an undeveloped source, or a source opened by minor quarrying or prospecting, the area proposed for development shall be adequately explored and sampled to the satisfaction of DNREC by means of "NX" (7.3 centimeters) size core-drilling to the limits and full depth of expected production. The Contractor shall locate the borings by survey and the entire length of recovered cores shall constitute the samples and shall be suitably bored and marked as to elevations, depths, and core losses. Submittal of core samples shall be accompanied by 3 copies of a plan showing location and elevations of borings together with detailed logs of borings operations. Drilling, blasting, and sampling of stripped or naturally exposed areas of bedrock surface which present prominent faces suitable for trial quarrying may serve as a partial alternative to the core-drilling method of exploration and sampling as approved by DNREC.

2.03 TESTING AND APPROVAL FOR ROCK QUALITY

- A. The acceptability of the rock may be determined from existing test reports, service records from similar marine usage, by geologic examination of samples and of the quarry and/or by testing. In all cases of sources not having suitable test reports or service records, such as newly opened, long-abandoned quarries, or undeveloped sources, the material will be subjected to such tests as are necessary to determine its acceptability in the work. All other sources may require testing at the option of DNREC. The tests to which the materials will be subjected include petrographic analysis, specific gravity, abrasion, absorption, unit weight determination, sulfate soundness, wetting and drying, freezing and thawing and unconfined compressive strength, and such other tests as may be considered necessary to demonstrate to the satisfaction of DNREC that the materials are acceptable for use in the work. The minimum rock quality criteria which must be met are those specified in paragraph Stone Riprap Material. In addition to the minimum criteria, other criteria determined from the tests or inspections listed above may be used to establish the acceptability of the stone. All tests will be made by or under the supervision of DNREC and at the Contractor's expense. As a minimum, the tests identified in Paragraph 2.01 of this Section shall be performed once for every 500 tons of stone. Approval of any source of stone shall not be construed as approval of all of the stone from that source. The right is reserved to reject certain localized areas, strata, or channels within the approved source when in the opinion of DNREC, the stone is disintegrated, badly weathered, contains incipient planes of weakness or hidden joints/fractures, or is otherwise unsatisfactory for use in the work. All stone will be subject to inspection during loading at the source, at intermediate transfer points and at the site of work prior to placement.

2.04 ROCK NOT MEETING THE SPECIFICATIONS

- A. If, during the progress of the work, it is found that the stone being furnished and/or placed by the Contractor does not fully meet all the requirements of the specifications, the Contractor shall be required to furnish other rock of a quality acceptable to DNREC. Any rock rejected at the site of the work as not meeting the requirements of these specifications for quality, condition, size, gradation or otherwise shall be removed from the site by and at the expense of the Contractor,

and rock of suitable quality shall be furnished and/or placed at no additional cost to DNREC.

2.05 STOCKPILES OF ROCK

- A. General: Separate stockpiles for the different classes of riprap shall be maintained at each quarry, intermediate transfer points, and at the work site. The stockpiles of riprap shall be labeled and representative rocks for each size shall be labeled and kept at the stockpiles for DNREC's reference.
- B. Rock Breakage: Rocks which are broken during shipment to the work site or during placement shall be re-weighed and may be reassigned to a new weight category using the specified gradation. Rocks broken in placement shall be removed from the structure and returned to the stockpile area to accomplish the re-weighing.

PART 3 - EXECUTION

3.01 PLACEMENT OF ROCK

- A. General: The Contractor shall submit his proposed method of construction, to include the sequence of rock placement, methods of placement, and equipment to be used during each construction phase, to DNREC for approval. Care shall be taken to place the rock to make a compact mass, and form as nearly as practicable a cross-section of uniform height, width, and slopes as shown on the Contract Drawings. Rocks shall be carefully placed so as to leave no large voids between them. Rock shall be placed in accordance with the construction sequence. The rock layers shall be placed to the full specified thickness in one operation.
- B. North Terminal Groin Construction
 - 1. The North Terminal Groin shall be constructed to the dimensions shown on the Contract Drawings. Existing sand shall be excavated from the beach and dune down to elevation 0 ft NAVD88 in order to construct the full height of the groin from elevation 0 ft to 6.00 ft. The sand shall be stockpiled for placement back against the groin after its construction. Following excavation of the sand, the geotextile shall be placed on the bottom as shown on the Contract Drawings.
 - 2. Core Stone: After the geotextile has been placed on top of the existing mudline, the core stone riprap shall be placed to the lines and grades indicated on the Contract Drawings. The in-place rock shall be a reasonably well-graded mass with a minimum practicable void space. The DeIDOT Class R-4 riprap shall be placed using a clamshell, hydraulic bucket, or similar equipment. Compaction of the rock will not be required.
 - 3. Armor Stone: As soon as practical following placement of the core stone, armor stone shall be placed to the lines and grades indicated on the Contract Drawings. The DeIDOT Class R-7 riprap armor stone shall be individually placed with a rock grab, bucket with a thumb, orange peel grab, grapple, crane, or similar equipment. The stone shall not be dropped or tipped into position, but shall be placed piece by piece into the layer and shall be interlocked or keyed in juxtaposition with

adjacent armor stones by rotating or setting them for maximum contact based on their angular shape with no continuous void through two armor layers where waves could work against inner layers of rock work and cause damage. Armor stone shall not be dropped from a height greater than 2 feet above the core stone surface. Compaction of the armor stone will not be required.

C. South Terminal Groin Construction

1. The South Terminal Groin shall be constructed to the dimensions shown on the Contract Drawings. The geotextile shall be placed on the existing bottom as shown on the Contract Drawings.
2. Armor Stone: After the geotextile has been placed on top of the existing bottom, the armor stone riprap shall be placed to the lines and grades indicated on the Contract Drawings. The in-place rock shall be a reasonably well-graded mass with a minimum practicable void space. The DelDOT Class R-6 riprap shall be placed using a clamshell, hydraulic bucket, rock grab, bucket with a thumb, orange peel grab, grapple, crane or similar equipment. The stone shall not be dropped or tipped into position, but shall be placed and interlocked in juxtaposition with adjacent armor stones. The stone shall be placed for maximum contact based on their angular shape with no continuous void where waves or currents could work and cause damage. Compaction of the rock will not be required.

D. Stone Dike Rehabilitation

1. Inside Core Stone: DelDOT Class R-4 riprap shall be placed and compacted on the inside slope of the existing stone dike as shown on the Contract Drawing to create a relatively smooth surface for geotextile. The riprap shall be placed using a clamshell, hydraulic bucket, or similar equipment. Following placement of the riprap, the geotextile shall be placed as shown on the Contract Drawings.
2. Inside Armor Stone: After the geotextile has been placed on top of the R-4 riprap, DelDOT Class R-7 riprap shall be placed to the lines and grades indicated on the Contract Drawings. The DelDOT Class R-7 riprap armor stone shall be individually placed with a rock grab, bucket with a thumb, orange peel grab, grapple, crane or similar equipment. The stone shall not be dropped or tipped into position, but shall be placed piece by piece into the layer and shall be interlocked or keyed in juxtaposition with adjacent armor stones by rotating or setting them for maximum contact based on their angular shape with no continuous void through two armor layers where waves could work against inner layers of rock work and cause damage. Armor stone shall not be dropped from a height greater than 2 feet above the core stone surface. Compaction of the inside armor stone will not be required.
3. Crest Armor Stone: As soon as practical following placement of the inside armor stone, crest armor stone shall be placed to the lines and grades indicated on the Contract Drawings. The DelDOT Class R-7 riprap armor stone shall be individually placed with a rock grab, bucket with a thumb, orange peel grab, grapple, crane or similar equipment. The stone shall not be dropped or tipped into position, but shall be placed piece by piece into the layer and shall be interlocked or keyed in juxtaposition with adjacent armor stones by rotating or setting them for maximum

contact based on their angular shape with no continuous voids where waves could work against the rock work and cause damage. Armor stone shall not be dropped from a height greater than 2 feet above the existing stone surface. Compaction of the crest armor stone will not be required.

E. Interior Groins Construction

1. The six groins on the inside of the existing stone dike along the Mispillion River shall be placed on top of the new sand fill as shown on the Contract Drawings. Geotextile shall be placed on top of the sand fill as shown.
2. Armor Stone: After the geotextile has been placed on top of the existing bottom, the armor stone riprap shall be placed to the lines and grades indicated on the Contract Drawings. The in-place rock shall be a reasonably well-graded mass with a minimum practicable void space. The DelDOT Class R-6 riprap shall be placed using a clamshell, hydraulic bucket, rock grab, bucket with a thumb, orange peel grab, grapple, crane or similar equipment. The stone shall not be dropped or tipped into position, but shall be placed and interlocked in juxtaposition with adjacent armor stones. The stone shall be placed for maximum contact based on their angular shape with no continuous void where waves or currents could work and cause damage. Compaction of the rock will not be required.

3.02 MAINTENANCE

- A. Exposed geotextile and core stone are vulnerable to damage until all armor stone is in place and rock work has been accepted. Contractor shall be responsible for care and maintenance of the rock structure until final acceptance by DNREC. Damage to rock work due to any cause prior to acceptance shall be repaired at Contractor's expense.

3.03 TOLERANCES

- A. Rock Placed Beyond the Specified Tolerances: Rock placed beyond the specified tolerances for each type of rock will not be paid for. Neither extreme of the specified tolerance shall be continuous over a length greater than 10 feet or an area greater than 100 square feet. DNREC may direct the removal or placement of additional stone, as the case may be, when tolerances are exceeded. Rock placed outside the cross-section, as shown on the drawings, will not be paid for.
- B. Deviations: Deviations in layer thickness, position, and elevations of final surfaces shall be no greater than the values set forth below:

Designation	Layer Thickness (ft)		Final Surface with Respect to Neat Line on Slopes (Horizontal Tolerance, ft)		Elevation of Horizontal Final Surfaces (ft)	
	(-)	(+)	(-)	(+)	(-)	(+)
Core Stone	0.5	0.5	0.5	0.5	0.5	0.5
Armor Stone	0.5	1.0	0.5	1.0	0.5	1.0

3.04 CONTRACTOR QUALITY CONTROL

- A. Division 1 Section "Quality Requirements" specifies the general requirements for the Contractor's Quality Control Program.
- B. The following describes the minimum inspection and testing required in the Contractor's Quality Control (CQC) Plan and Program for the work of this section and is for CQC only. The implementation of the Contractor Quality Control Program does not relieve the Contractor from the responsibility to provide the work in accordance with the Contract Documents, applicable codes, regulations, and governing authorities. The CQC Plan and Program shall include, but not be limited to, the following testing and inspection elements. These elements are provided as a minimum starting point for the Contractor to use to generate his complete CQC Program.

3.05 QUALITY CONTROL: SUPERVISION, INSPECTION, AND RECORDS

- A. The Contractor shall establish and maintain quality control for construction of the groins and stone dike rehabilitation and all other operations in connection therewith to assure compliance with contract requirements. The Contractor shall inspect for compliance with contract requirements and record the inspection of all operations, including but not limited to the following:
 - 1. Armor stone complies with the specifications for quality and gradation.
 - 2. Armor stone placed to the lines and grades shown on the Contract Drawings and within allowable tolerances.
 - 3. All rock carefully placed in a dense, compact mass.
 - 4. All rock identified as to size and stockpiled properly.
 - 5. Rejected rock materials properly marked and disposition recorded.
- B. Contractor Furnished Scales: The Contractor shall furnish at the site of work and at each quarry, an approved hydraulic or spring-type scale. The scales shall be officially tested and sealed by a certified sealer of weights and measures every 4 months during the construction period, without cost to DNREC. A copy of the scale testing and sealing shall be furnished to DNREC on the initial and each subsequent testing. The scales shall be used to verify rock weights to insure that undersized or oversized stones are not placed in the structure.
- C. The Contractor shall submit a quality control plan, no later than 15 days following Notice to Proceed, for approval. The plan shall include the name of the person responsible for implementing the plan and any forms to be used to document compliance with the requirements of this Section.
- D. Records: A copy of the records of inspections and reports of operations as well as any corrective actions taken will be furnished to DNREC.

PART 4 - COMPENSATION

4.01 MEASUREMENT

- A. The unit of measurement for rock in place in the finished work will be by the ton. Measurement will be based on the weight of rock, surface dry, in its natural state, as determined by one or more of the following methods.
1. Vessel Displacement: When vessel displacement is used for the determination of weights, the following procedure will be used for the determination. Each vessel will be accurately measured and will be fitted with gages graduated in tenths of a foot. The gages will be located on each corner of the vessel, near the lower end of the rake, with two additional gages amid ship, if deemed necessary by DNREC. Fore and aft displacement due to load will not differ more than 10 percent from their mean for the determination of tonnage, except in unavoidable cases. All gage readings will be made in still water. At the option of DNREC, tonnage determinations may be made at the loading point by using change in gage readings from light marks to load marks, or at the unloading point by using change in gage readings from load marks to light marks. All vessels shall be pumped dry (within the limits of the pump suction) before each gaging, and limbers shall be kept open so that any water in the vessel will flow freely to the pump suction. The weight of the water displaced at the point of gaging will be based on approved hydrometer readings of the water assuming that water weighing 1 gram per cubic centimeter has a specific gravity of 1.00.
 2. Weight: Rock delivered by vessel may be weighed by approved hydraulic or spring-type line scale furnished by the Contractor at the site of the work. The scale shall be officially tested and sealed by the certified sealer of weights and measures every 4 months without expense to DNREC. Scale weights shall be recorded by a representative of DNREC and records will be countersigned by the Contractor.
 3. Certified Weight: If shipments are made by railroad from the quarry, certified railroad weights will be accepted. If shipments are made by truck from the quarry, each truckload of stone shall be weighed on scales which have been carefully verified by a properly accredited official. One original report and duplicate copy of weights of each carload or truckload, certified by the weigher and prepared in ink or indelible pencil, shall be furnished to DNREC. The report shall show gross, tare, and net weight of each carload or truckload. If there is, in the opinion of DNREC or his representative, any doubt as to the quantity of stone on any car or truck, as indicated by the weight determined at the point of shipment, due to loss in transit or other causes, the Contractor shall at his expense have such car or truck reweighed in the presence of DNREC or his representative on scales which have been verified by a properly accredited official. Should there be a difference in weight of stone at the point of shipment and at the point of destination, the weight at the latter point will be accepted as correct and used for payment. The cost of meeting the foregoing requirements shall be included in the contract price.
 4. Stone Deductions: Computation of the deduction from delivered tonnage for stone placed beyond the prescribed cross-section limits, as shown on the contract drawings will be on the basis of cross-sections of the finished work, and a deduction of 1.5 tons per cubic yard of structure built outside of the prescribed

cross-section limits. Should stone weighing more than 175 pounds per cubic foot in dry air be used in the structure, a correction in the tonnage shown on the weight certificate will be made. The tonnage to be paid for shall be the number of tons proportionally corrected using 175 pounds per cubic foot as the base correctional factor. No correctional factor will be made for stone weighing between 160 and 175 pounds per cubic foot.

5. Surveys: Surveys shall be conducted by the Contractor before and after placing rock. Sections shall be surveyed at no greater than 50 foot spacing along the long axis of the active work face, plus a longitudinal centerline profile. Each section will define sufficient points to accurately represent rock in place. Deductions to measured quantity of rock will be made for rock occurring outside the limits of payment. Deductions will be calculated from disallowed cross-sectional area and converted to tonnage using bulk specific gravity of rock.

4.02 PAYMENT

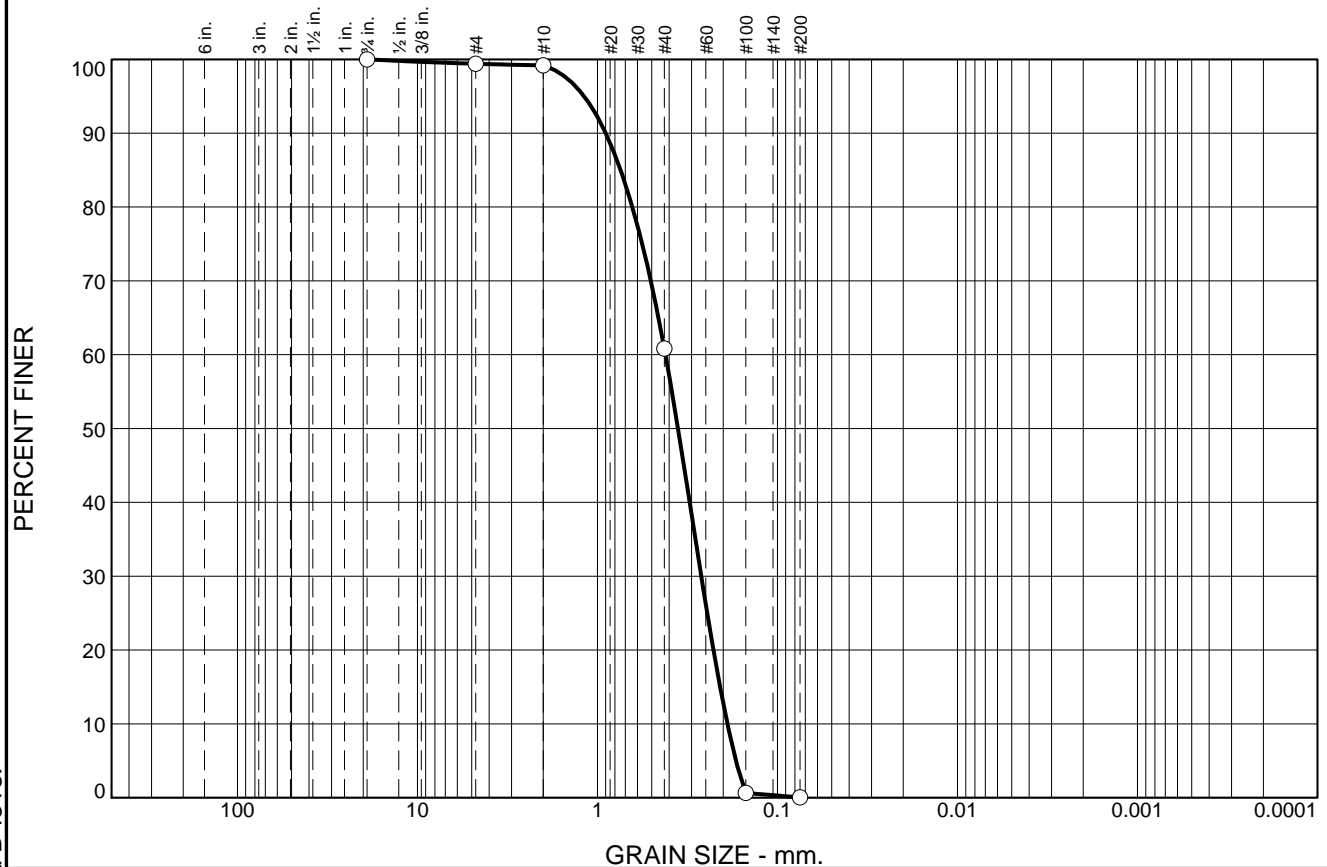
- A. Payment for "DelDOT Class R-4 Core Stone," complete in place, shall be made at the Unit Price Bid per ton under Item No. 3 on the Bid Form. This price shall include all furnishing and placement.
- B. Payment for "DelDOT Class R-6 Armor Stone," complete in place, for South Terminal Groin and Interior Groins A, B and C, shall be made at the Unit Price Bid per ton under Item No. 4 on the Bid Form. This price shall include all furnishing and placement.
- C. Payment for "DelDOT Class R-7 Armor Stone," complete in place, shall be made at the Unit Price Bid per ton under Item No. 5 on the Bid Form. This price shall include all furnishing and placement.
- D. Payment for "DelDOT Class R-6 Armor Stone," complete in place, for Optional Interior Groins D, E and F, shall be made at the Unit Price Bid per ton under Item No. 7 on the Bid Form. This price shall include all furnishing and placement.
- E. The above prices shall include all the work described in this Section and shown on the Contract Drawings including all labor, materials, services, and equipment necessary to complete the work in every respect to the satisfaction of DNREC.

-- End of Section --

APPENDIX 1

GEOTECHNICAL REPORTS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.2	38.4	60.8		0.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	99.4		
#10	99.2		
#40	60.8		
#100	0.6		
#200	0.0		

* (no specification provided)

Soil Description

Gray, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 4.4

Coefficients

D₉₀= 0.8999 D₈₅= 0.7439 D₆₀= 0.4190
D₅₀= 0.3569 D₃₀= 0.2650 D₁₅= 0.2084
D₁₀= 0.1898 C_u= 2.21 C_c= 0.88

Classification

USCS= SP AASHTO= A-3

Remarks

Source of Sample: MS-1

Depth: 0-2.0

Date: 3/24/2015



GEO-TECHNOLOGY ASSOCIATES, INC.

18 Boulden Circle, Suite 36
New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

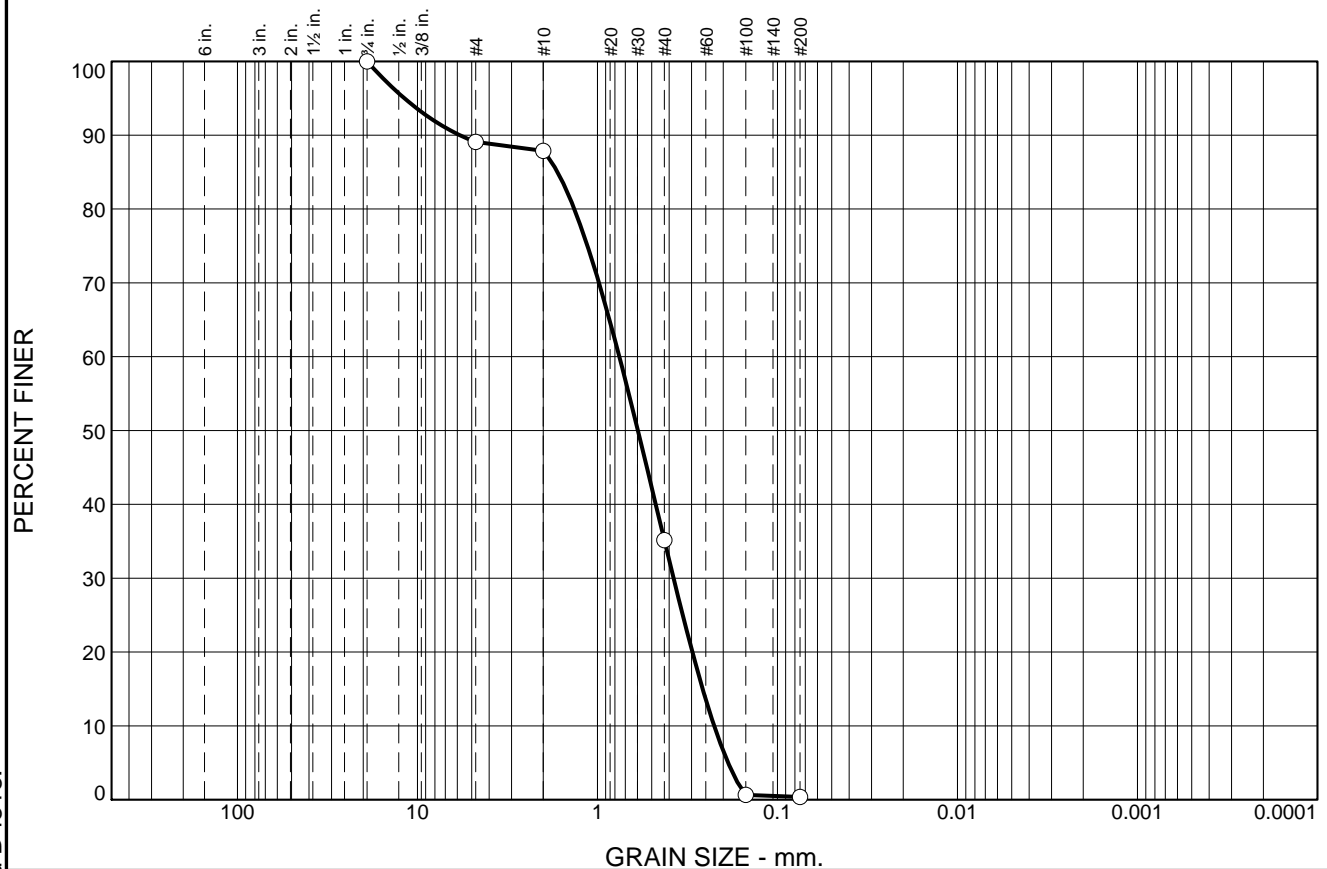
Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.9	1.2	52.8	34.7		0.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	89.1		
#10	87.9		
#40	35.1		
#100	0.6		
#200	0.4		

* (no specification provided)

Soil Description

Tan, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 4.2

Coefficients

D₉₀= 5.8276 D₈₅= 1.6651 D₆₀= 0.7562
D₅₀= 0.5963 D₃₀= 0.3777 D₁₅= 0.2603
D₁₀= 0.2247 C_u= 3.36 C_c= 0.84

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-1.5

Depth: 0-2.0

Date: 3/24/2015



GEO-TECHNOLOGY ASSOCIATES, INC.

18 Boulden Circle, Suite 36
New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

Figure

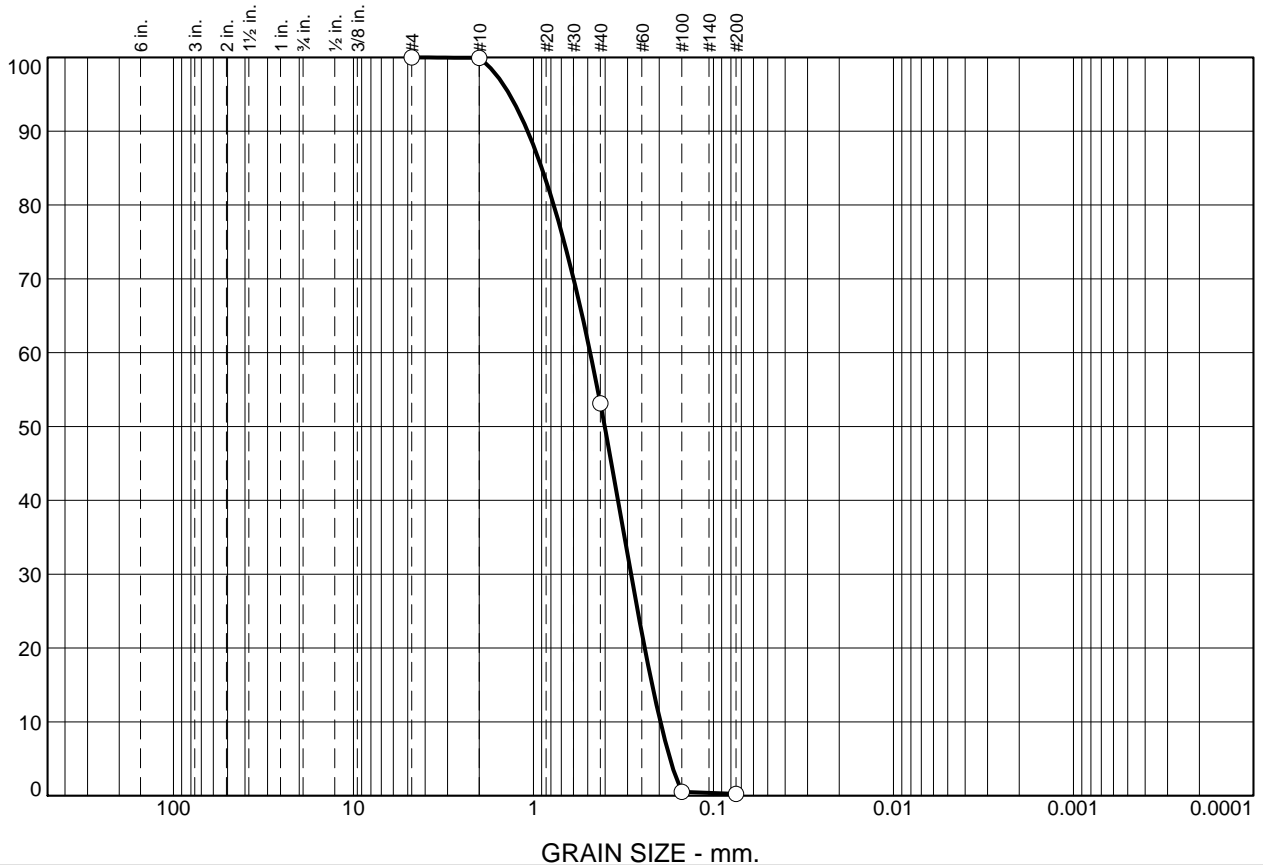
Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report

PERCENT FINER



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	46.8	52.9		0.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	53.1		
#100	0.5		
#200	0.2		

* (no specification provided)

Soil Description

Tan, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 4.2

Coefficients

D₉₀= 1.0777 D₈₅= 0.8993 D₆₀= 0.4838
D₅₀= 0.4018 D₃₀= 0.2868 D₁₅= 0.2191
D₁₀= 0.1973 C_u= 2.45 C_c= 0.86

Classification

USCS= SP AASHTO= A-3

Remarks

Source of Sample: MS-2

Depth: 0-2.0

Date: 3/24/2015



GEO-TECHNOLOGY ASSOCIATES, INC.

18 Boulden Circle, Suite 36
New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

Figure

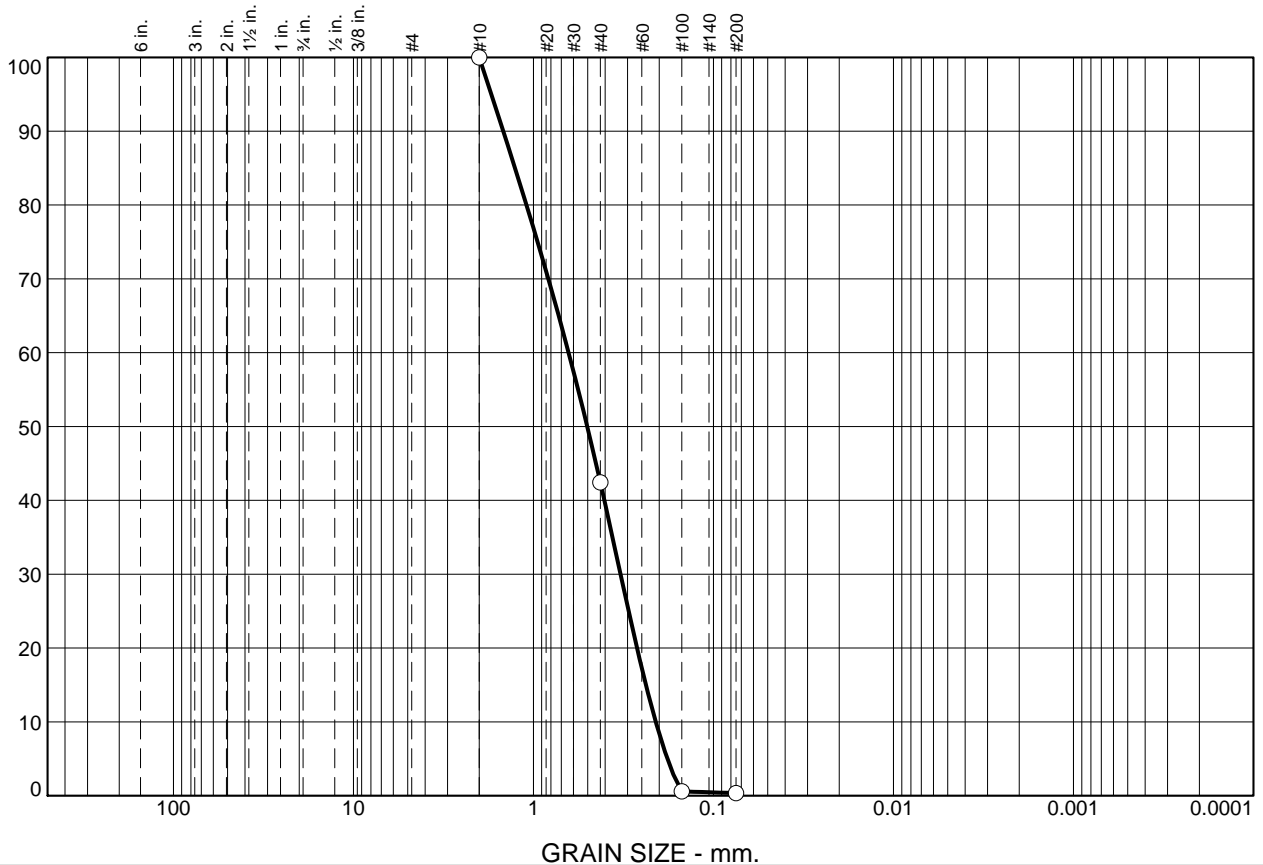
Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report

PERCENT FINER



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	57.6	42.1		0.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	42.4		
#100	0.6		
#200	0.3		

* (no specification provided)

Soil Description

Tan, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 4.0

Coefficients

D₉₀= 1.4717 D₈₅= 1.2665 D₆₀= 0.6379
D₅₀= 0.5026 D₃₀= 0.3282 D₁₅= 0.2372
D₁₀= 0.2093 C_u= 3.05 C_c= 0.81

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-2.5

Depth: 0-2.0

Date: 3/24/2015



GEO-TECHNOLOGY ASSOCIATES, INC.
18 Boulden Circle, Suite 36
New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

Figure

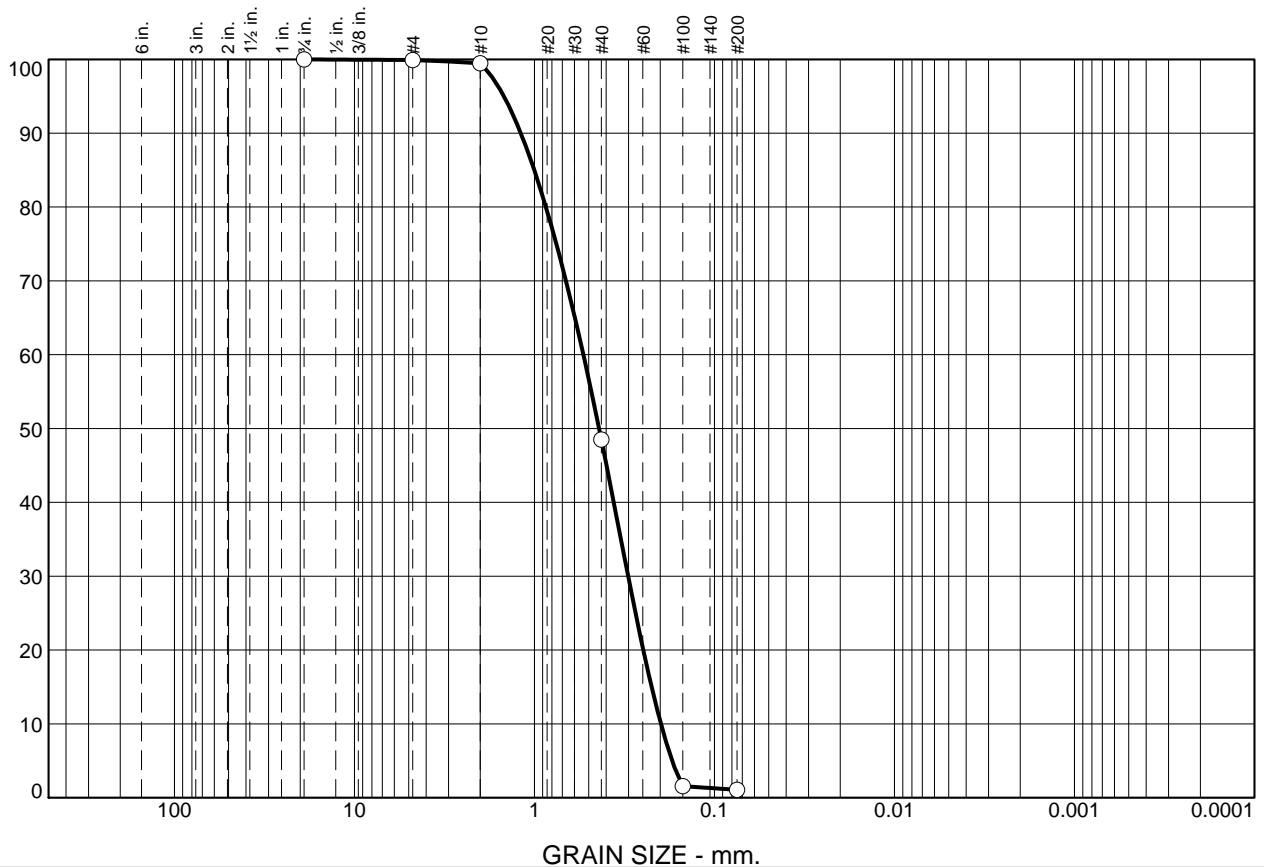
Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report

PERCENT FINER



GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	51.0	47.4		1.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	99.9		
#10	99.5		
#40	48.5		
#100	1.5		
#200	1.1		

* (no specification provided)

Soil Description

Gray, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 3.9

Coefficients

D₉₀= 1.1912 D₈₅= 1.0026 D₆₀= 0.5349
D₅₀= 0.4374 D₃₀= 0.3016 D₁₅= 0.2235
D₁₀= 0.1985 C_u= 2.69 C_c= 0.86

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-3

Date: 3/24/2015



GEO-TECHNOLOGY ASSOCIATES, INC.

18 Boulden Circle, Suite 36
New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

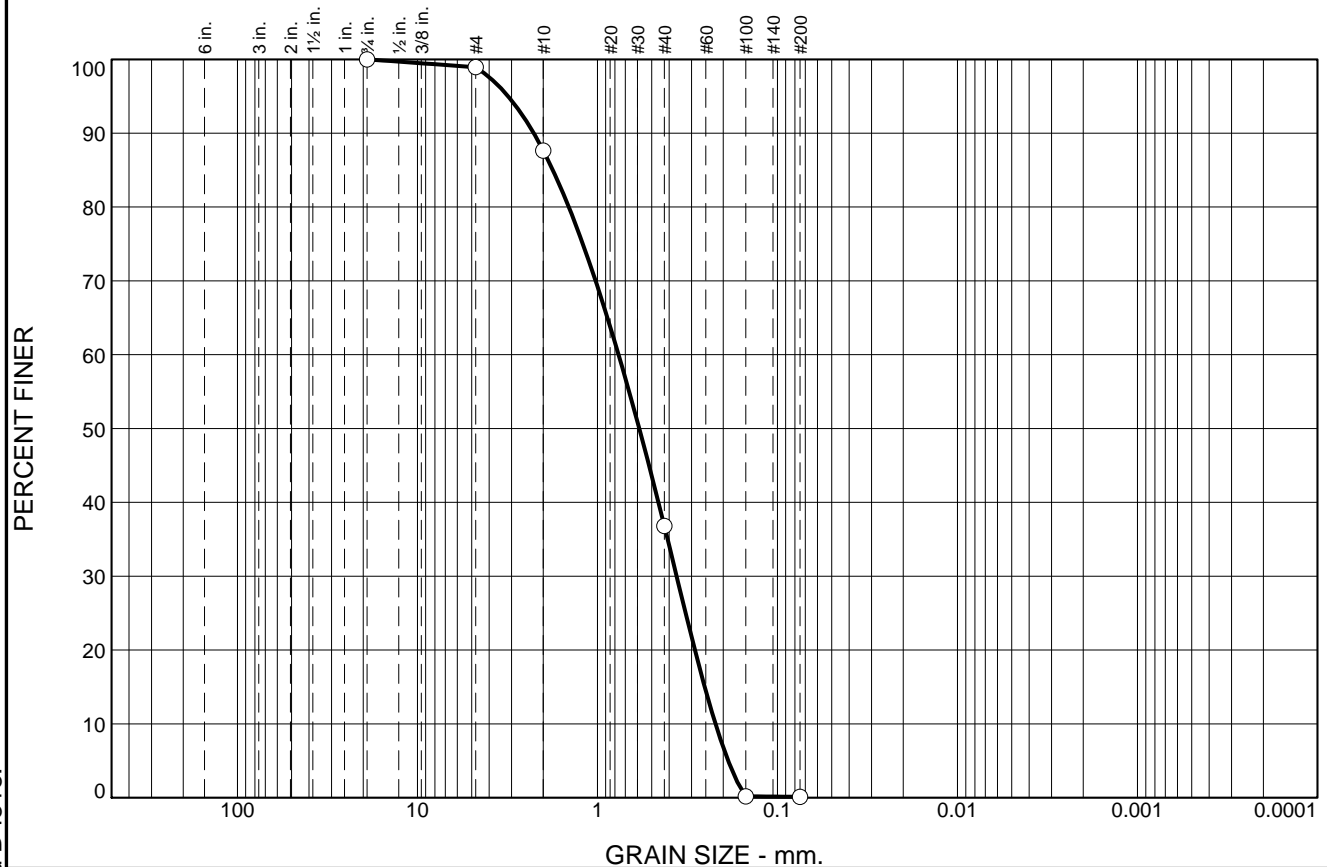
Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	11.3	50.8	36.7		0.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	98.9		
#10	87.6		
#40	36.8		
#100	0.2		
#200	0.1		

* (no specification provided)

Soil Description

Gray, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 3.8

Coefficients

D₉₀= 2.2598 D₈₅= 1.7692 D₆₀= 0.7635
D₅₀= 0.5858 D₃₀= 0.3633 D₁₅= 0.2535
D₁₀= 0.2210 C_u= 3.45 C_c= 0.78

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-3.5

Depth: 0-2.0

Date: 3/24/2015



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Project: Mispillion Complex

Project No: 150369

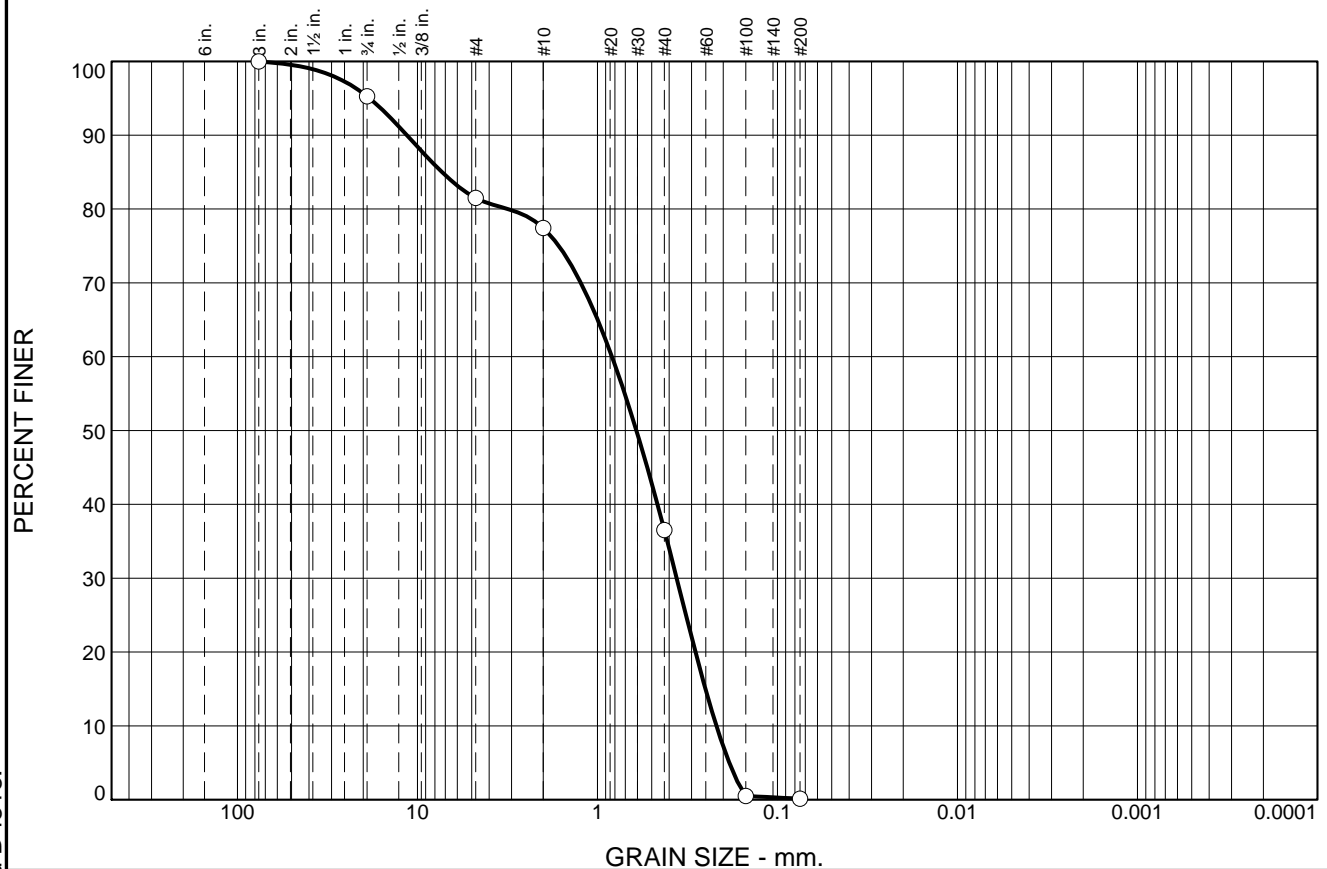
Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.7	13.8	4.1	40.9	36.4		0.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
.75	95.3		
#4	81.5		
#10	77.4		
#40	36.5		
#100	0.5		
#200	0.1		

* (no specification provided)

Soil Description

Tan, wet, Poorly-graded SAND with gravel

Atterberg Limits

PL= NP LL= NP PI= NP NM= 3.3

Coefficients

D₉₀= 11.4418 D₈₅= 7.3067 D₆₀= 0.8309
D₅₀= 0.6078 D₃₀= 0.3630 D₁₅= 0.2511
D₁₀= 0.2184 C_u= 3.80 C_c= 0.73

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-4 Depth: 0-2.0

Date: 3/24/2015



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Project: Mispillion Complex

Project No: 150369

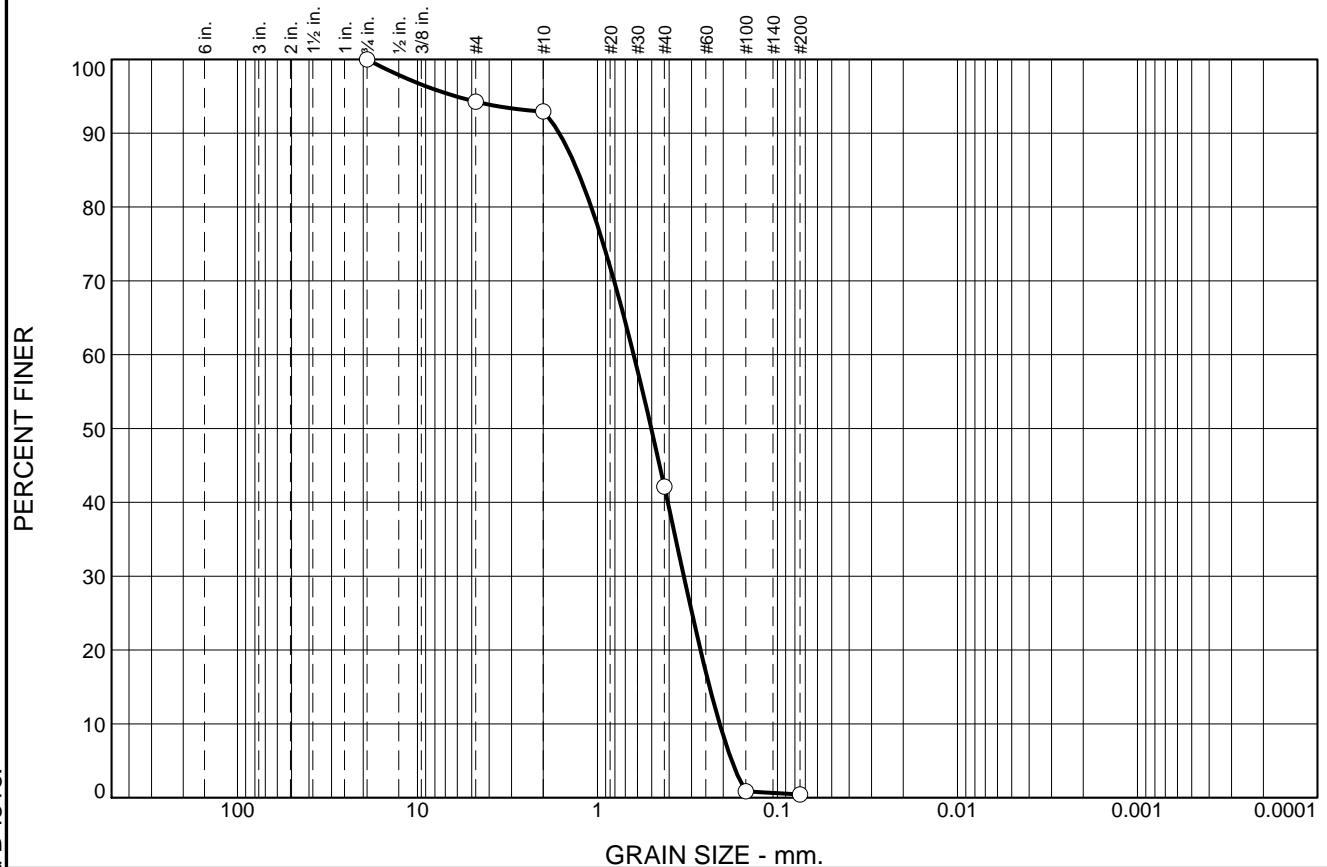
Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.7	1.4	50.8	41.7		0.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	94.3		
#10	92.9		
#40	42.1		
#100	0.9		
#200	0.4		

* (no specification provided)

Soil Description

Gray, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 3.7

Coefficients

D₉₀= 1.6311 D₈₅= 1.2958 D₆₀= 0.6294
D₅₀= 0.5023 D₃₀= 0.3312 D₁₅= 0.2383
D₁₀= 0.2095 C_u= 3.00 C_c= 0.83

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-4.5

Depth: 0-2.0

Date: 3/24/2015



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Project: Mispillion Complex

Project No: 150369

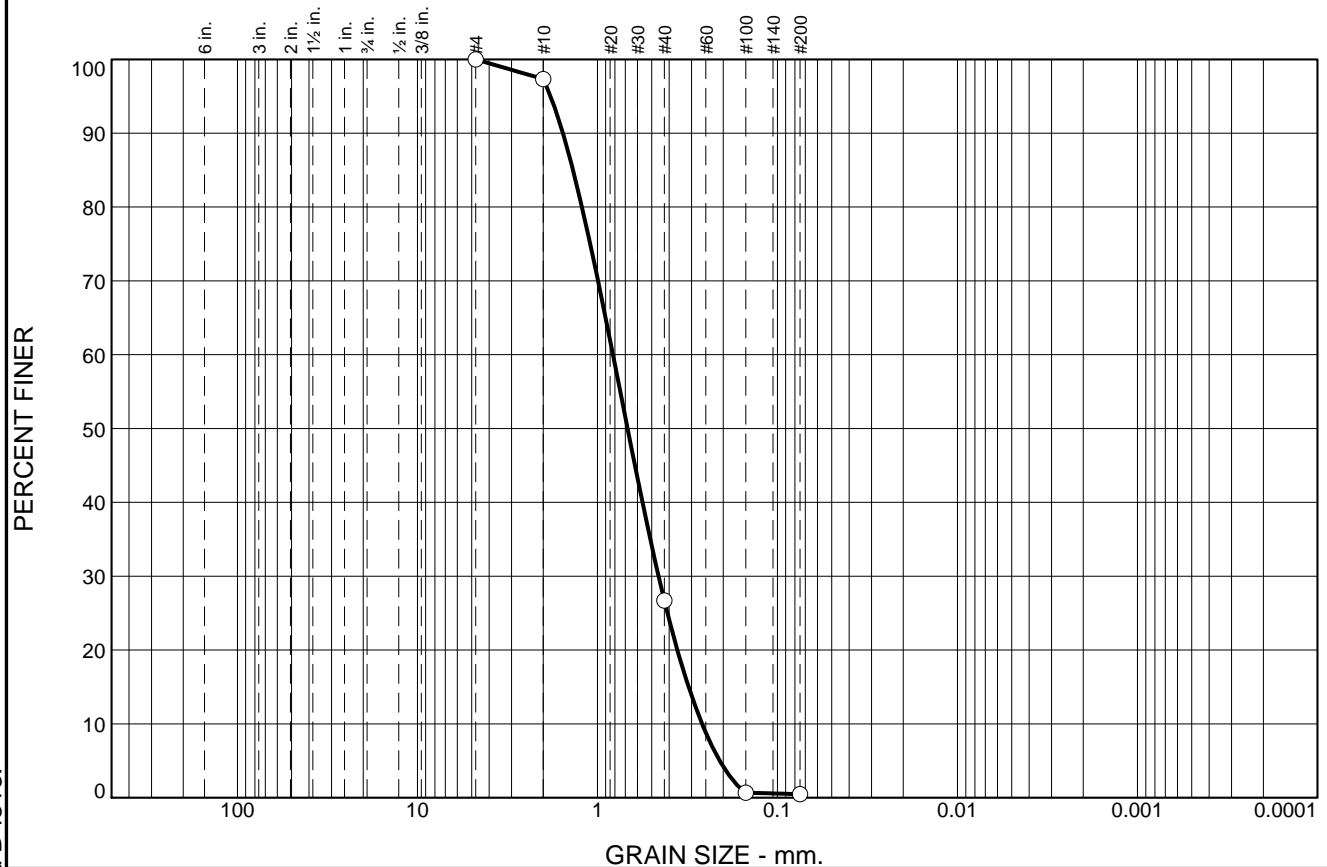
Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.7	70.6	26.2	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.3		
#40	26.7		
#100	0.7		
#200	0.5		

* (no specification provided)

Soil Description

Gray, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 3.6

Coefficients

D₉₀= 1.5555 D₈₅= 1.3676 D₆₀= 0.8201
D₅₀= 0.6804 D₃₀= 0.4577 D₁₅= 0.3115
D₁₀= 0.2623 C_u= 3.13 C_c= 0.97

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-5

Depth: 0-2.0

Date: 3/24/2015



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Project: Mispillion Complex

Project No: 150369

Figure

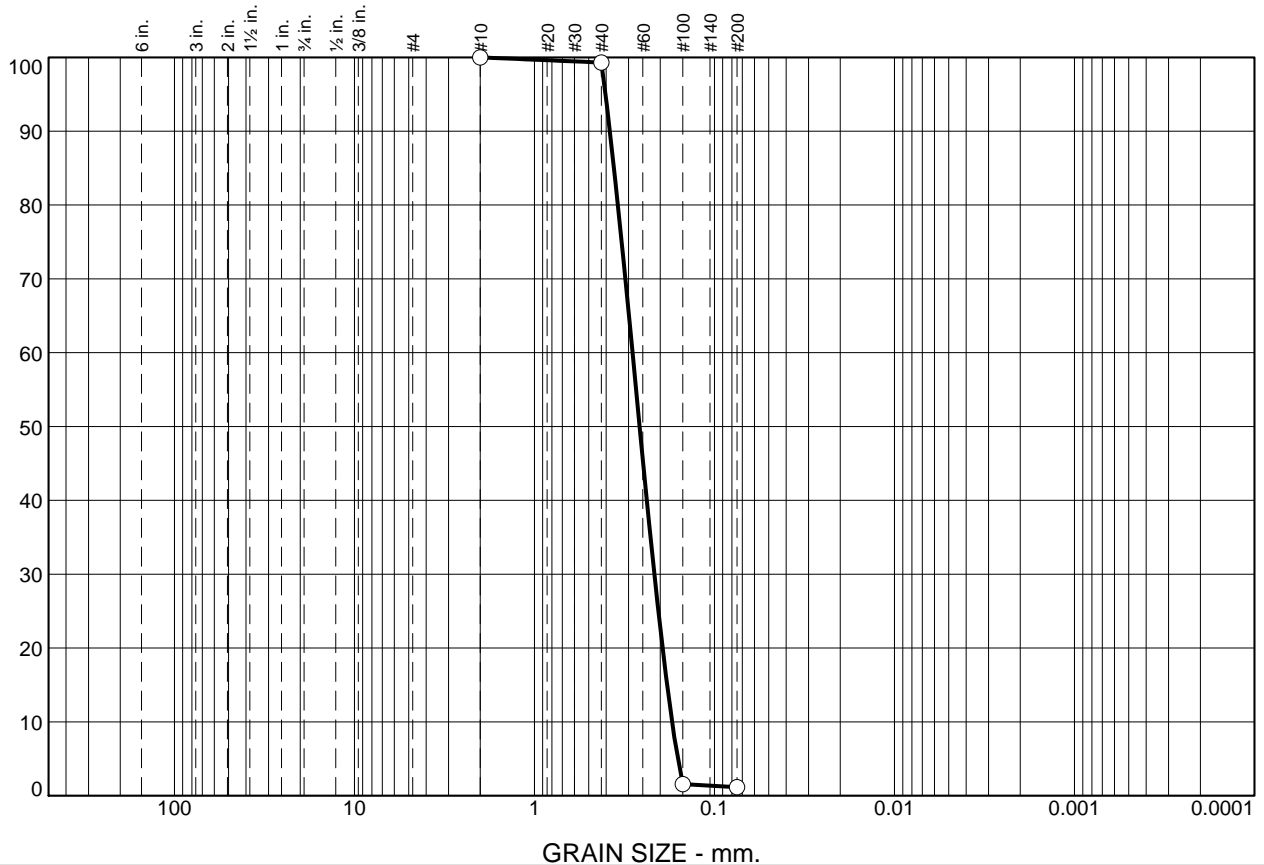
Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report

PERCENT FINER



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	98.2		1.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.3		
#100	1.6		
#200	1.1		

* (no specification provided)

Soil Description

White, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 14.1

Coefficients

D₉₀= 0.3811 D₈₅= 0.3615 D₆₀= 0.2852
D₅₀= 0.2604 D₃₀= 0.2158 D₁₅= 0.1835
D₁₀= 0.1721 C_u= 1.66 C_c= 0.95

Classification

USCS= SP AASHTO= A-3

Remarks

Source of Sample: BS-10 Depth: 0-2.0

Date: 3/31/2015



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Project No: 150369

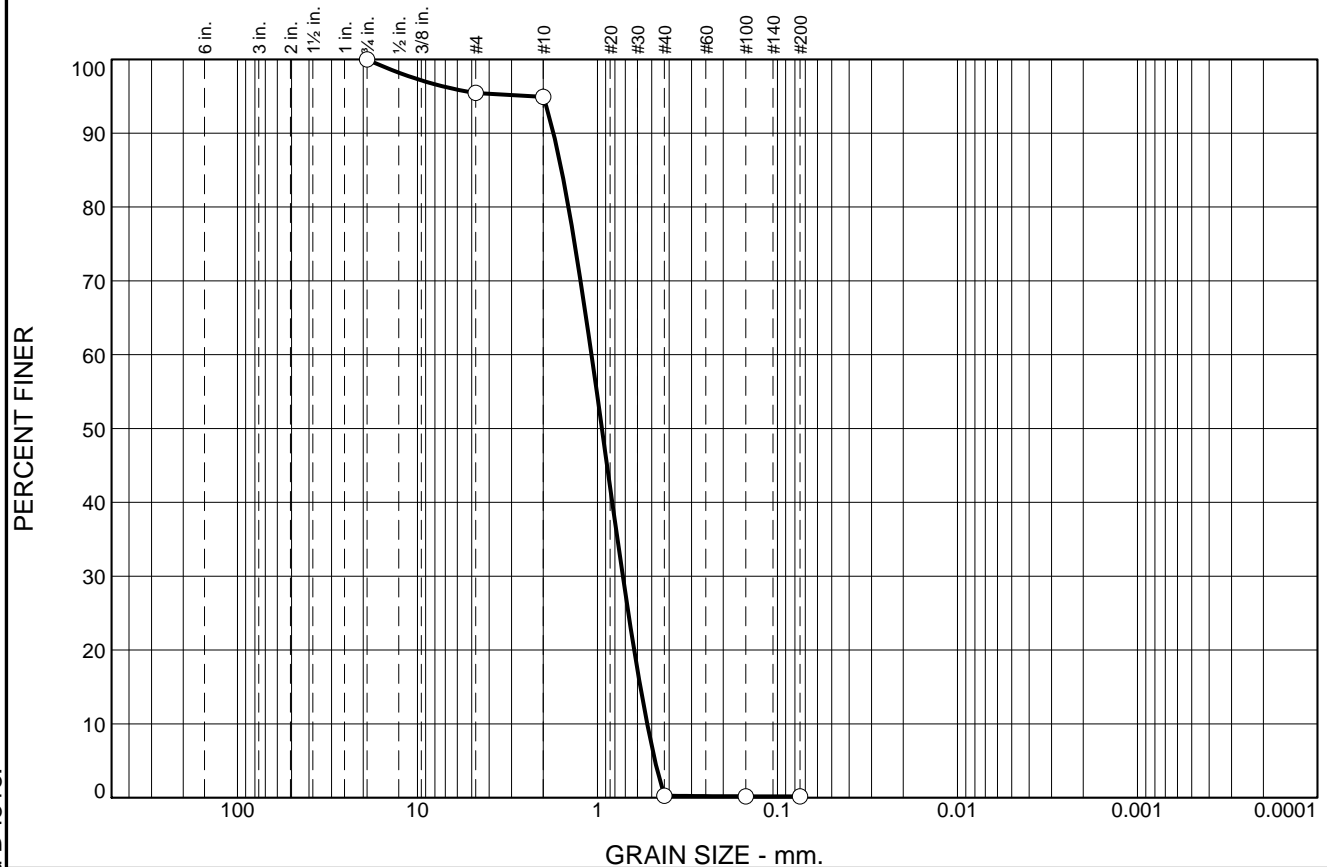
Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.5	0.6	94.6	0.1		0.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	95.5		
#10	94.9		
#40	0.3		
#100	0.2		
#200	0.2		

* (no specification provided)

Soil Description

White, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 3.5

Coefficients

D₉₀= 1.7541 D₈₅= 1.5835 D₆₀= 1.0797
D₅₀= 0.9448 D₃₀= 0.7228 D₁₅= 0.5776
D₁₀= 0.5295 C_u= 2.04 C_c= 0.91

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: BS-11 Depth: 0-2.0

Date: 3/31/2015



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Project No: 150369

Figure

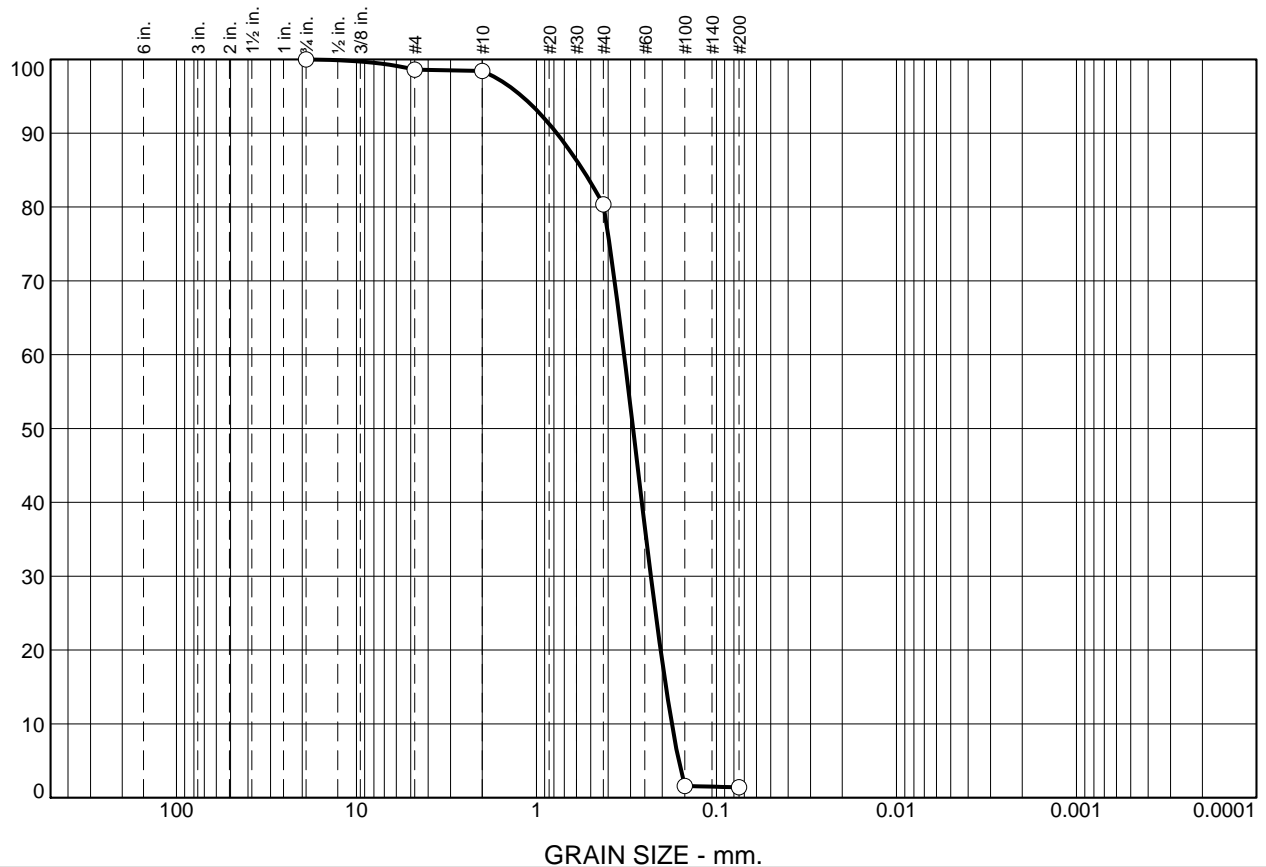
Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report

PERCENT FINER



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.2	18.1	78.9		1.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	98.6		
#10	98.4		
#40	80.3		
#100	1.6		
#200	1.4		

* (no specification provided)

Soil Description

Gray, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 25.0

Coefficients

D₉₀= 0.7715 D₈₅= 0.5521 D₆₀= 0.3259
D₅₀= 0.2906 D₃₀= 0.2314 D₁₅= 0.1910
D₁₀= 0.1771 C_u= 1.84 C_c= 0.93

Classification

USCS= SP AASHTO= A-3

Remarks

Source of Sample: BS-12 Depth: 0-2.0

Date: 3/31/2015



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Project No: 150369

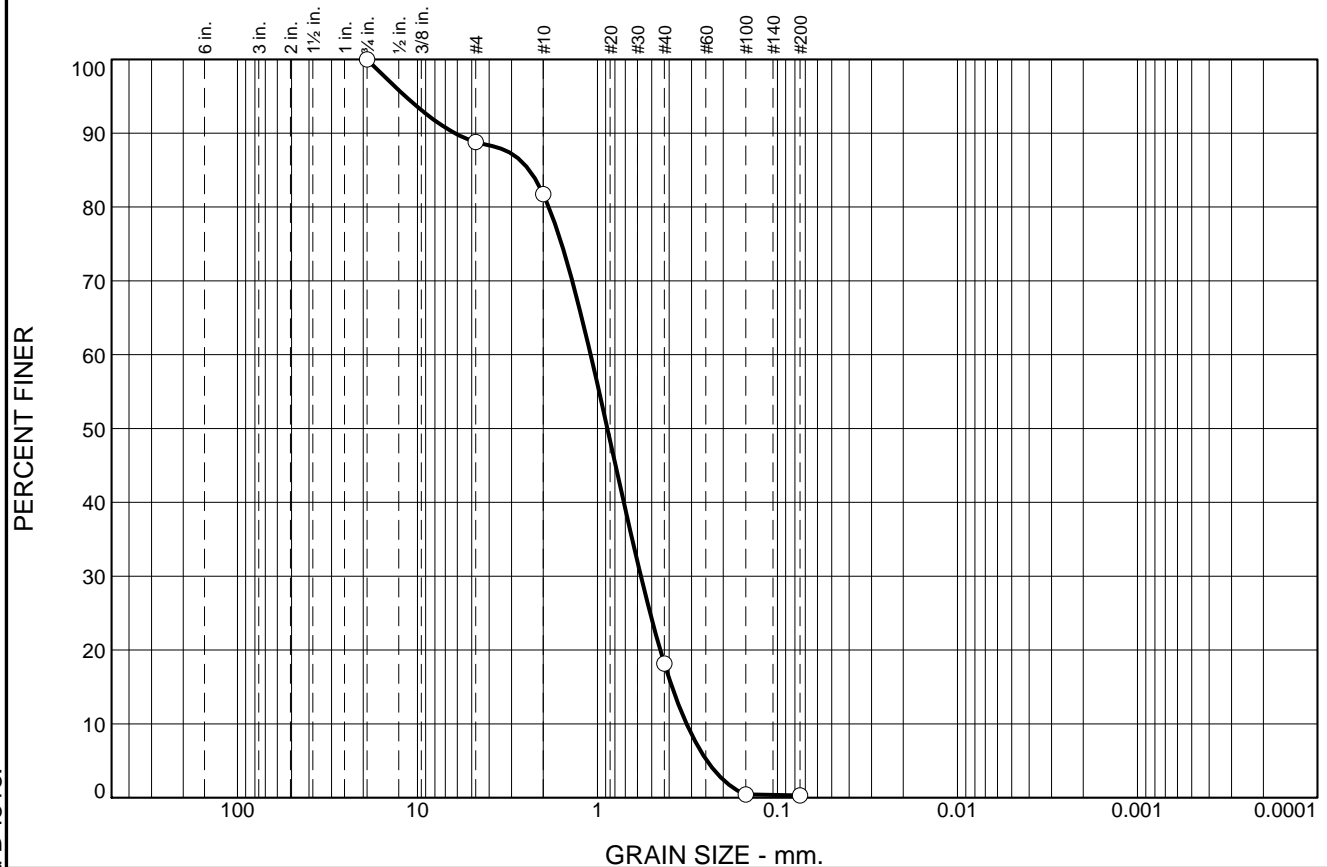
Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.2	7.1	63.5	17.9		0.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	88.8		
#10	81.7		
#40	18.2		
#100	0.4		
#200	0.3		

* (no specification provided)

Soil Description

White, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 4.9

Coefficients

D₉₀= 6.1954 D₈₅= 2.3931 D₆₀= 1.0915
D₅₀= 0.8808 D₃₀= 0.5736 D₁₅= 0.3852
D₁₀= 0.3196 C_u= 3.41 C_c= 0.94

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: BS-13 Depth: 0-2.0

Date: 3/31/2015



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Project No: 150369

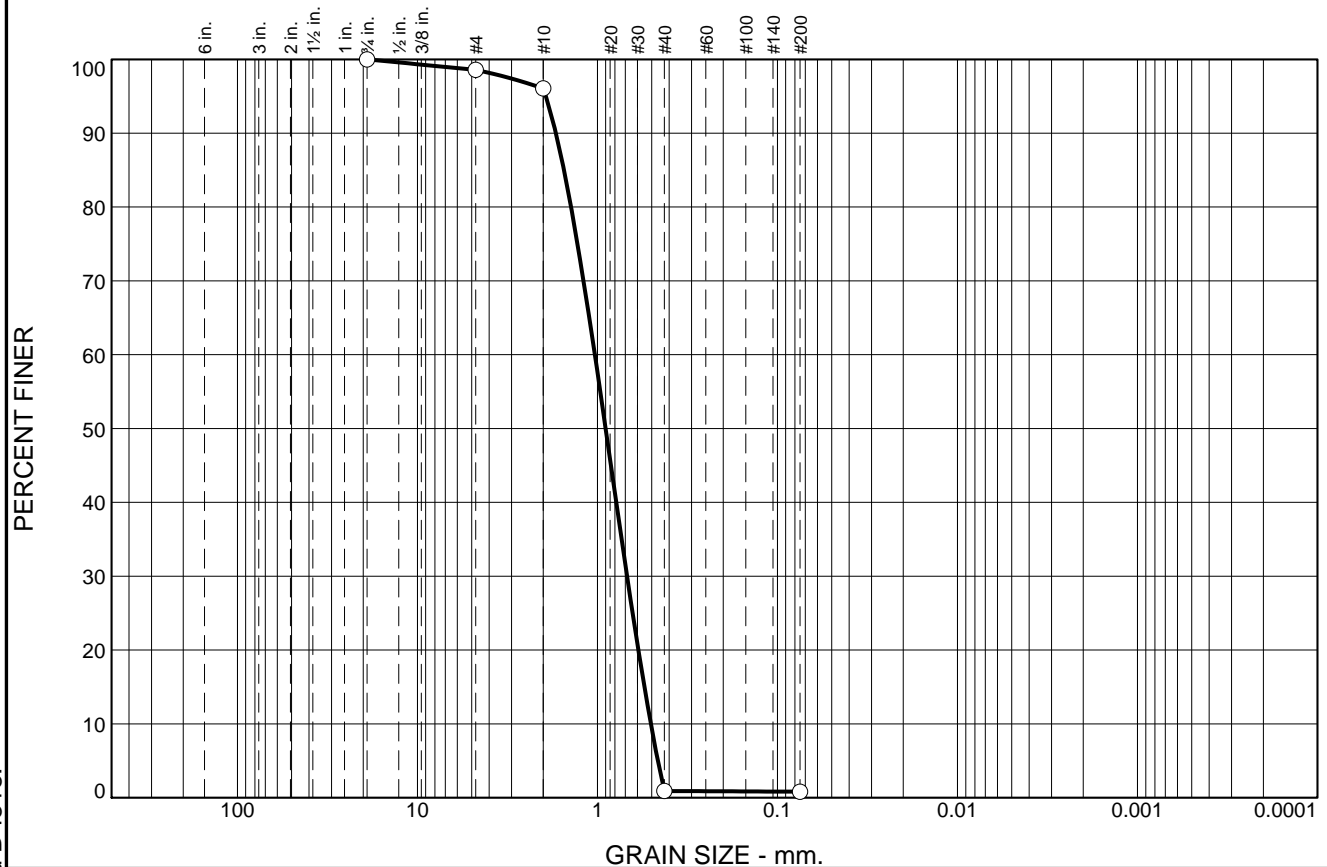
Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.5	95.2	0.1		0.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	98.6		
#10	96.1		
#40	0.9		
#200	0.8		

* (no specification provided)

Soil Description

White, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 22.5

Coefficients

D₉₀= 1.7008 D₈₅= 1.5347 D₆₀= 1.0342
D₅₀= 0.9008 D₃₀= 0.6849 D₁₅= 0.5485
D₁₀= 0.5052 C_u= 2.05 C_c= 0.90

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: BS-14 Depth: 0-1.0

Date: 4/10/2015



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Project: Mispillion Complex

Project No: 150369

Figure

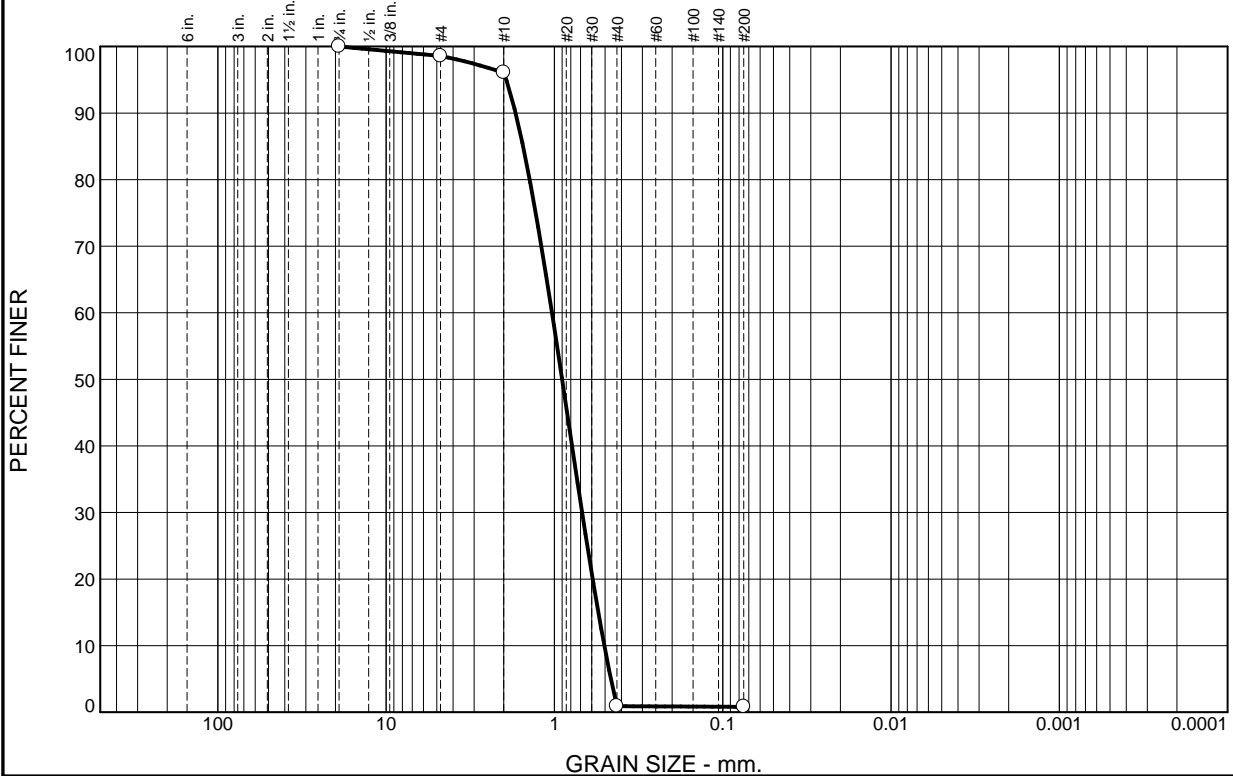
Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	2.5	95.2	0.1	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	98.6		
#10	96.1		
#40	0.9		
#200	0.8		

* (no specification provided)

Soil Description
White, wet, Poorly-graded SAND

Atterberg Limits
PL= NP LL= NP PI= NP NM= 22.5

Coefficients
 D₉₀= 1.7008 D₈₅= 1.5347 D₆₀= 1.0342
 D₅₀= 0.9008 D₃₀= 0.6849 D₁₅= 0.5485
 D₁₀= 0.5052 C_u= 2.05 C_c= 0.90

Classification
USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: BS-14 Depth: 0-1.0

Date: 4/10/2015



GEO-TECHNOLOGY ASSOCIATES, INC.
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New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

Figure

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.2	38.4	60.8		0.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	99.4		
#10	99.2		
#40	60.8		
#100	0.6		
#200	0.0		

* (no specification provided)

Soil Description
Gray, wet, Poorly-graded SAND

Atterberg Limits
PL= NP LL= NP PI= NP NM= 4.4

Coefficients
D₉₀= 0.8999 D₈₅= 0.7439 D₆₀= 0.4190
D₅₀= 0.3569 D₃₀= 0.2650 D₁₅= 0.2084
D₁₀= 0.1898 C_u= 2.21 C_c= 0.88

Classification
USCS= SP AASHTO= A-3

Remarks

Source of Sample: MS-1 Depth: 0-2.0

Date: 3/24/2015



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Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

Figure 1

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.9	1.2	52.8	34.7		0.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	89.1		
#10	87.9		
#40	35.1		
#100	0.6		
#200	0.4		

* (no specification provided)

Soil Description

Tan, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 4.2

Coefficients

D₉₀= 5.8276 D₈₅= 1.6651 D₆₀= 0.7562
 D₅₀= 0.5963 D₃₀= 0.3777 D₁₅= 0.2603
 D₁₀= 0.2247 C_u= 3.36 C_c= 0.84

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-1.5

Depth: 0-2.0

Date: 3/24/2015



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New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

Figure 2

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	46.8	52.9		0.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#40	53.1		
#100	0.5		
#200	0.2		

* (no specification provided)

Soil Description

Tan, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 4.2

Coefficients

D₉₀= 1.0777 D₈₅= 0.8993 D₆₀= 0.4838
 D₅₀= 0.4018 D₃₀= 0.2868 D₁₅= 0.2191
 D₁₀= 0.1973 C_u= 2.45 C_c= 0.86

Classification

USCS= SP AASHTO= A-3

Remarks

Source of Sample: MS-2

Depth: 0-2.0

Date: 3/24/2015



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Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

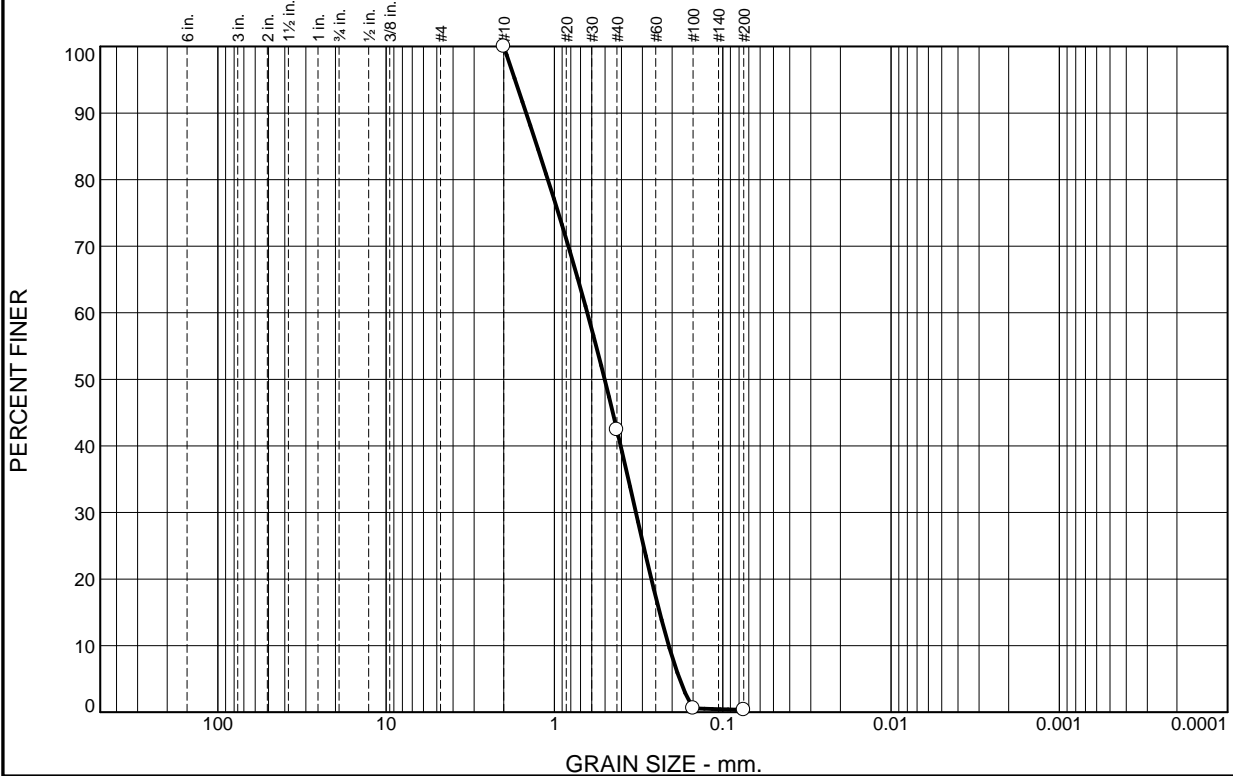
Figure 3

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	57.6	42.1		0.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	42.4		
#100	0.6		
#200	0.3		

* (no specification provided)

Soil Description
Tan, wet, Poorly-graded SAND

Atterberg Limits
PL= NP LL= NP PI= NP NM= 4.0

Coefficients
D₉₀= 1.4717 D₈₅= 1.2665 D₆₀= 0.6379
D₅₀= 0.5026 D₃₀= 0.3282 D₁₅= 0.2372
D₁₀= 0.2093 C_u= 3.05 C_c= 0.81

Classification
USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-2.5

Depth: 0-2.0

Date: 3/24/2015



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Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

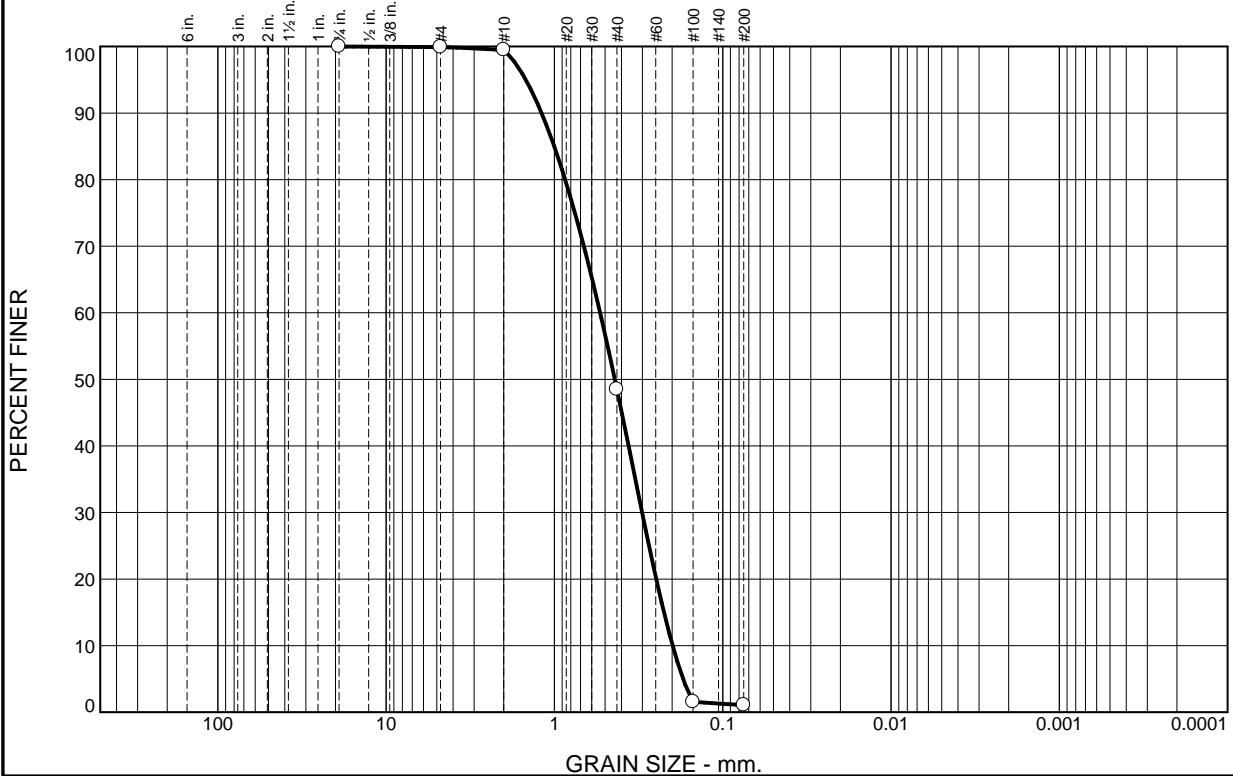
Figure 4

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.4	51.0	47.4	1.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	99.9		
#10	99.5		
#40	48.5		
#100	1.5		
#200	1.1		

* (no specification provided)

Soil Description
Gray, wet, Poorly-graded SAND

Atterberg Limits
PL= NP LL= NP PI= NP NM= 3.9

Coefficients
D₉₀= 1.1912 D₈₅= 1.0026 D₆₀= 0.5349
D₅₀= 0.4374 D₃₀= 0.3016 D₁₅= 0.2235
D₁₀= 0.1985 C_u= 2.69 C_c= 0.86

Classification
USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-3

Date: 3/24/2015



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New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

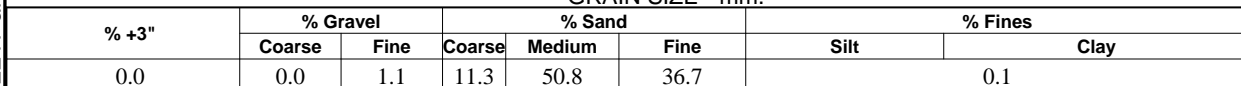
Project No: 150369

Figure 5

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.



<u>Soil Description</u>			
Gray, wet, Poorly-graded SAND			
<u>Atterberg Limits</u>			
PL= NP	LL= NP	PI= NP	NM= 3.8
<u>Coefficients</u>			
D ₉₀ = 2.2598	D ₈₅ = 1.7692	D ₆₀ = 0.7635	
D ₅₀ = 0.5858	D ₃₀ = 0.3633	D ₁₅ = 0.2535	
D ₁₀ = 0.2210	C _u = 3.45	C _c = 0.78	
<u>Classification</u>			
USCS= SP	AASHTO= A-1-b		
<u>Remarks</u>			

Date: 3/24/2015



Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.7	13.8	4.1	40.9	36.4		0.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
.75	95.3		
#4	81.5		
#10	77.4		
#40	36.5		
#100	0.5		
#200	0.1		

* (no specification provided)

Soil Description

Tan, wet, Poorly-graded SAND with gravel

Atterberg Limits

PL= NP LL= NP PI= NP NM= 3.3

Coefficients

D₉₀= 11.4418 D₈₅= 7.3067 D₆₀= 0.8309
D₅₀= 0.6078 D₃₀= 0.3630 D₁₅= 0.2511
D₁₀= 0.2184 C_u= 3.80 C_c= 0.73

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-4 Depth: 0-2.0

Date: 3/24/2015



GEO-TECHNOLOGY ASSOCIATES, INC.

18 Boulden Circle, Suite 36
New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

Figure 7

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.7	1.4	50.8	41.7		0.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	94.3		
#10	92.9		
#40	42.1		
#100	0.9		
#200	0.4		

* (no specification provided)

Soil Description
Gray, wet, Poorly-graded SAND

Atterberg Limits
PL= NP LL= NP PI= NP NM= 3.7

Coefficients
D₉₀= 1.6311 D₈₅= 1.2958 D₆₀= 0.6294
D₅₀= 0.5023 D₃₀= 0.3312 D₁₅= 0.2383
D₁₀= 0.2095 C_u= 3.00 C_c= 0.83

Classification
USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-4.5

Depth: 0-2.0

Date: 3/24/2015



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Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

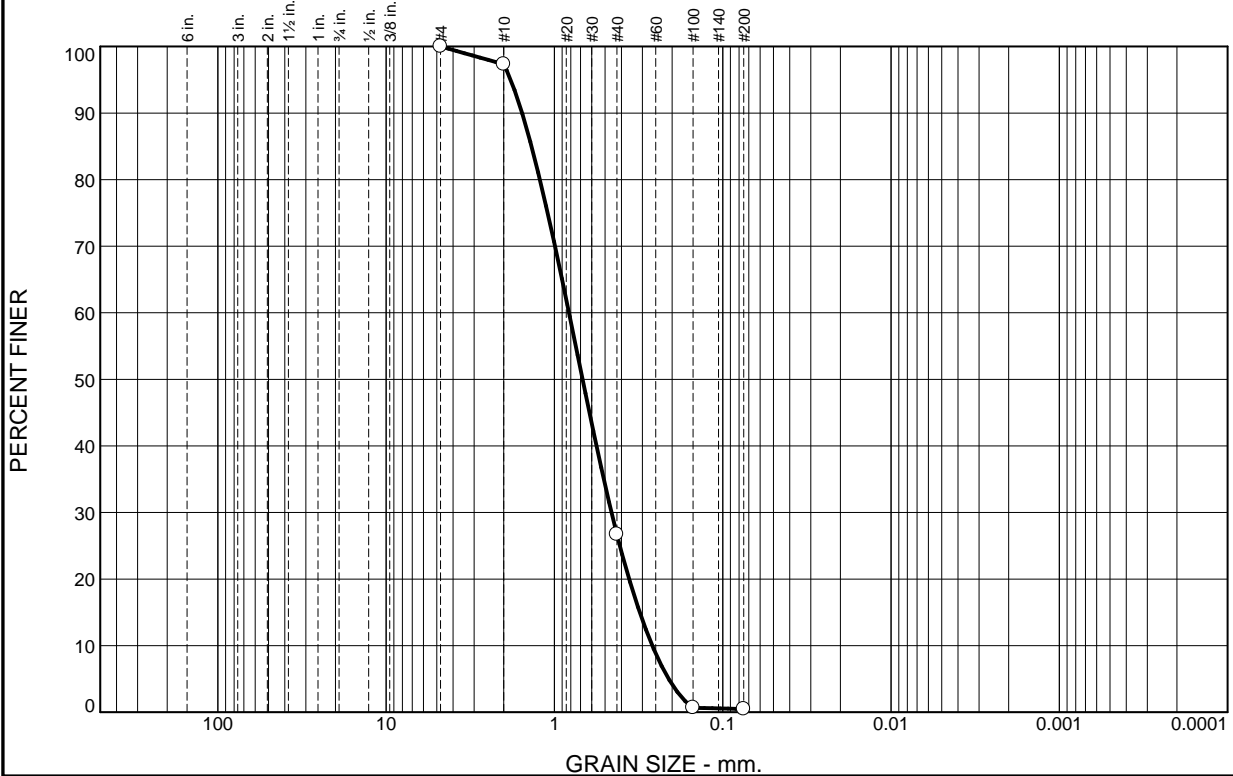
Figure 8

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.7	70.6	26.2	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.3		
#40	26.7		
#100	0.7		
#200	0.5		

* (no specification provided)

Soil Description
Gray, wet, Poorly-graded SAND

Atterberg Limits
PL= NP LL= NP PI= NP NM= 3.6

Coefficients
D₉₀= 1.5555 D₈₅= 1.3676 D₆₀= 0.8201
D₅₀= 0.6804 D₃₀= 0.4577 D₁₅= 0.3115
D₁₀= 0.2623 C_u= 3.13 C_c= 0.97

Classification
USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: MS-5 Depth: 0-2.0

Date: 3/24/2015



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Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

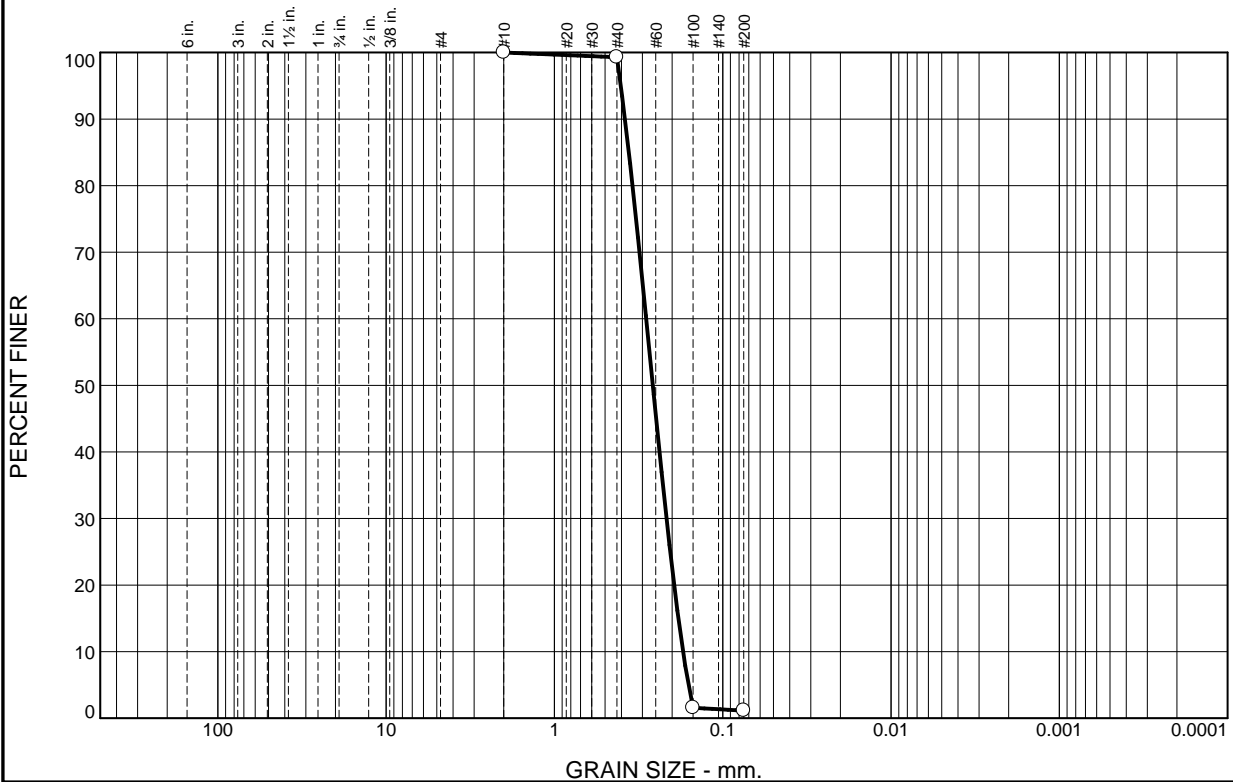
Figure 9

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.7	98.2		1.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	99.3		
#100	1.6		
#200	1.1		

* (no specification provided)

Soil Description
White, wet, Poorly-graded SAND

Atterberg Limits
PL= NP LL= NP PI= NP NM= 14.1

Coefficients
D₉₀= 0.3811 D₈₅= 0.3615 D₆₀= 0.2852
D₅₀= 0.2604 D₃₀= 0.2158 D₁₅= 0.1835
D₁₀= 0.1721 C_u= 1.66 C_c= 0.95

Classification
USCS= SP AASHTO= A-3

Remarks

Source of Sample: BS-10 Depth: 0-2.0

Date: 3/31/2015



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Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

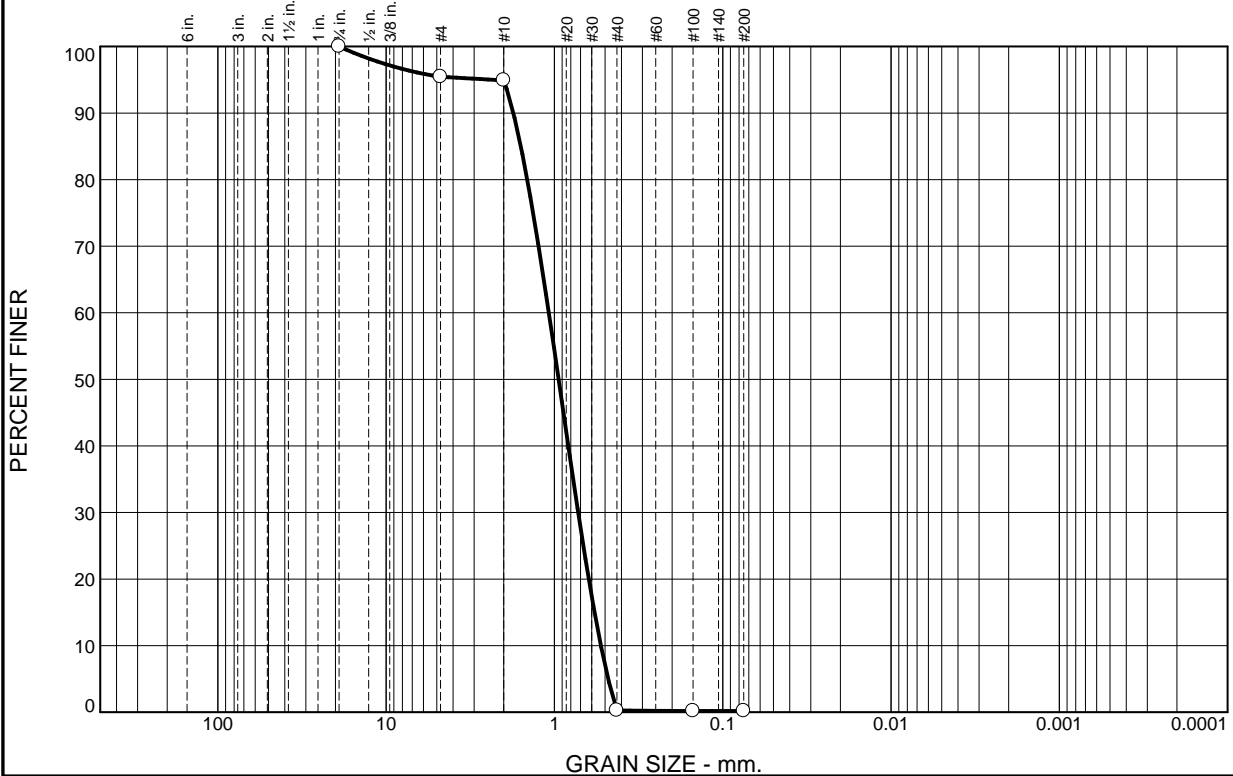
Figure 10

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.5	0.6	94.6	0.1	0.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	95.5		
#10	94.9		
#40	0.3		
#100	0.2		
#200	0.2		

* (no specification provided)

Soil Description
White, wet, Poorly-graded SAND

Atterberg Limits
PL= NP LL= NP PI= NP NM= 3.5

Coefficients
D₉₀= 1.7541 D₈₅= 1.5835 D₆₀= 1.0797
D₅₀= 0.9448 D₃₀= 0.7228 D₁₅= 0.5776
D₁₀= 0.5295 C_u= 2.04 C_c= 0.91

Classification
USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: BS-11

Depth: 0-2.0

Date: 3/31/2015



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New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

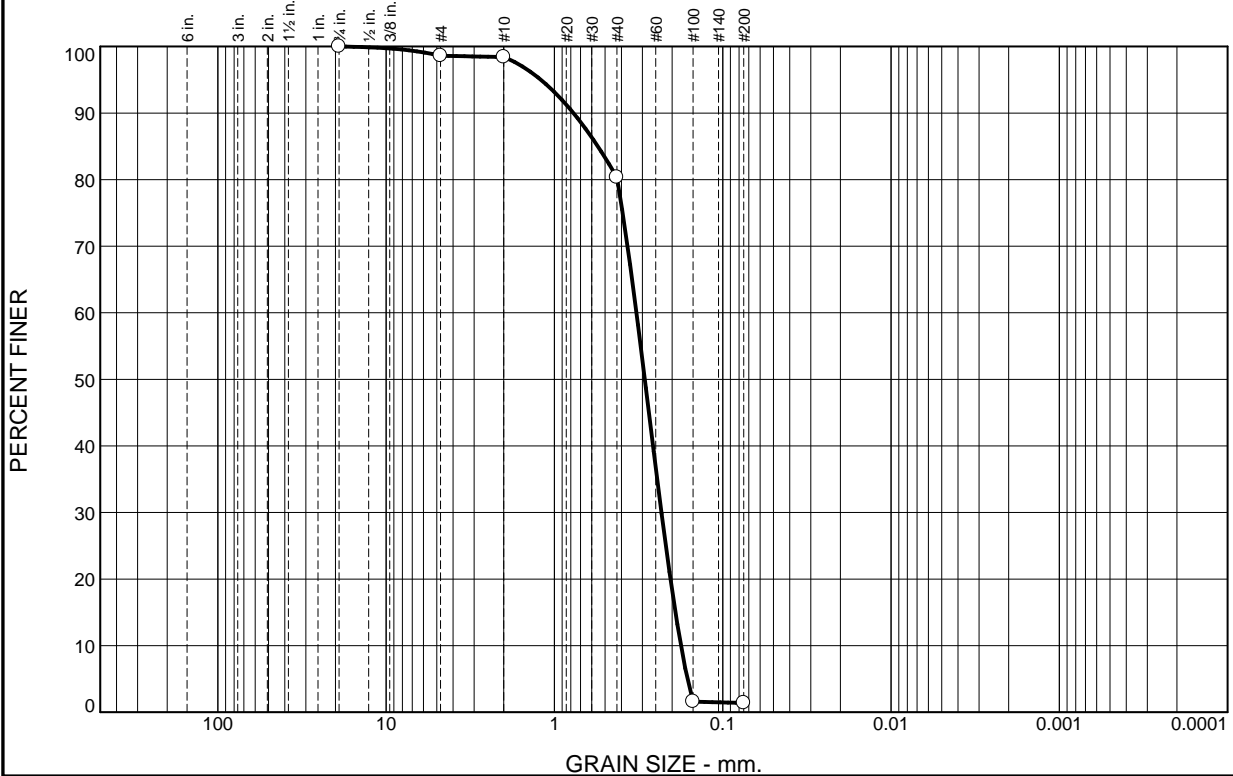
Figure 11

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	0.2	18.1	78.9	1.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	98.6		
#10	98.4		
#40	80.3		
#100	1.6		
#200	1.4		

* (no specification provided)

Soil Description

Gray, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 25.0

Coefficients

D₉₀= 0.7715 D₈₅= 0.5521 D₆₀= 0.3259
 D₅₀= 0.2906 D₃₀= 0.2314 D₁₅= 0.1910
 D₁₀= 0.1771 C_u= 1.84 C_c= 0.93

Classification

USCS= SP AASHTO= A-3

Remarks

Source of Sample: BS-12

Depth: 0-2.0

Date: 3/31/2015



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New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

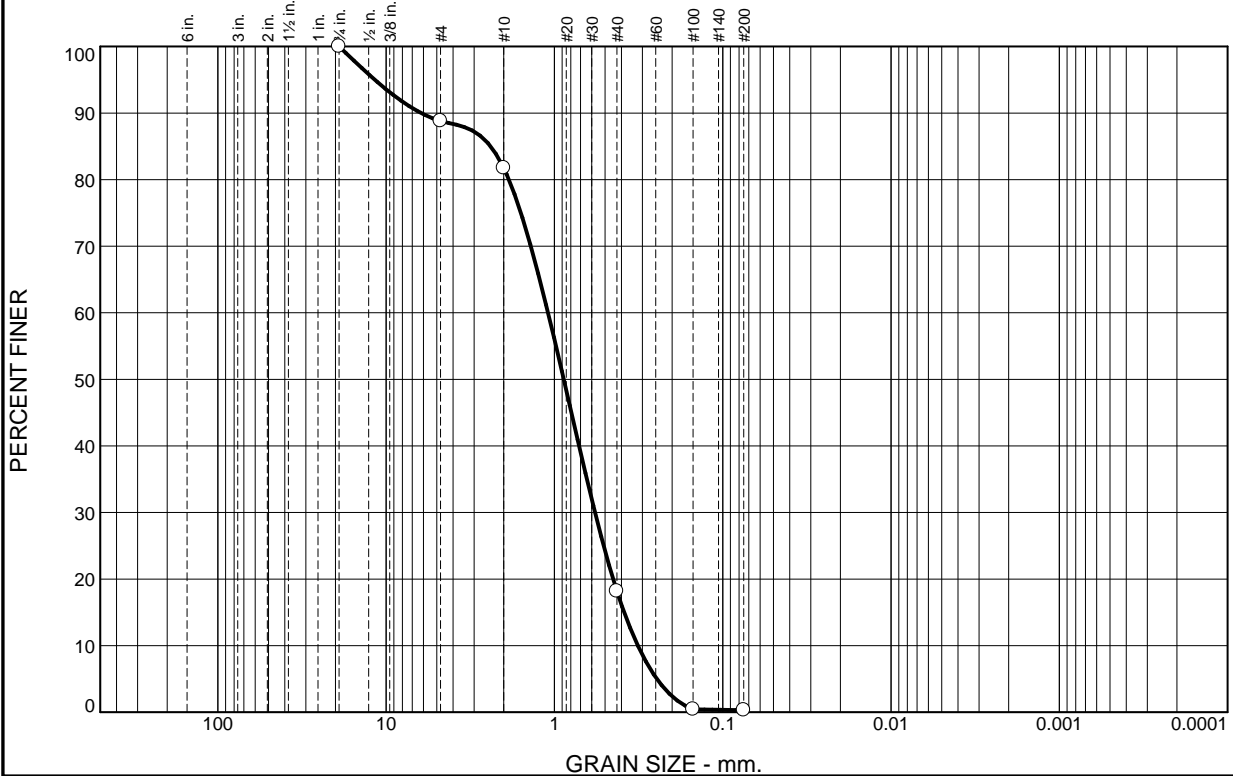
Figure 12

Tested By: J. Friant

Checked By: M. Lester

ASTM Specifications performed may include D421, D422, D2216, D2217 and D4318.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	11.2	7.1	63.5	17.9	0.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
#4	88.8		
#10	81.7		
#40	18.2		
#100	0.4		
#200	0.3		

* (no specification provided)

Soil Description

White, wet, Poorly-graded SAND

Atterberg Limits

PL= NP LL= NP PI= NP NM= 4.9

Coefficients

D₉₀= 6.1954 D₈₅= 2.3931 D₆₀= 1.0915
 D₅₀= 0.8808 D₃₀= 0.5736 D₁₅= 0.3852
 D₁₀= 0.3196 C_u= 3.41 C_c= 0.94

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: BS-13

Depth: 0-2.0

Date: 3/31/2015



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 New Castle, DE 19720

Client: Moffatt & Nichol
Project: Mispillion Complex

Project No: 150369

Figure 13




Tested By: J. Friant

Checked By: M. Lester

LOG OF BORING NO. MR-1





Sheet 1 of 1

PROJECT: **Mispillion Complex**
PROJECT NO.: **150369**
PROJECT LOCATION: **Kent County, Delaware**

WATER LEVEL (ft):  **6.0**  **6.0** 
DATE: **3/19/15** **3/19/15**
CAVED (ft): **Casing** **N/A**

DATE STARTED: **3/19/15**
DATE COMPLETED: **3/19/15**
DRILLING CONTRACTOR: **GTA**
DRILLER: **D. Hans**
DRILLING METHOD: **Tripod Acker**
SAMPLING METHOD: **Split Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) **6.0**
GROUND SURFACE ELEVATION: **2**
DATUM: **Google Earth**
EQUIPMENT: **ATVCME550X**
LOGGED BY: **C. Costanzi**
CHECKED BY: **M. Lester**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION		REMARKS
S-1	0.0	12	1-2-4	6	2.0	0	SP		Gray, moist, loose, Poorly-graded SAND		
S-2	2.5	14	7-8-8	16					Same, medium dense		
S-3	5.0	10	6-6-5	11		5			Same, wet, trace gravel		
S-4	8.0	1	13-13-10	23	-6.0		GP		Gray and tan, medium dense, Poorly-graded GRAVEL		
S-5	13.0	16	2-2-2	4	-11.0		ML		Black, wet, soft, SILT with Sand, trace gravel		
S-6	18.0	18	3-2-2	4		15			Same, contains wood/organics		
S-7	23.5	18	WH/18		-23.0	20			Same, very soft		
						25			Boring terminated at 25.0 feet.		

NOTES: **Elevation and location should be considered approximate.**



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New Castle, DE 19720




LOG OF BORING NO. MR-1

Sheet 1 of 1

LOG OF BORING NO. MR-2

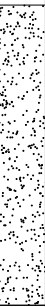

Sheet 1 of 1

PROJECT: **Mispillion Complex**
 PROJECT NO.: **150369**
 PROJECT LOCATION: **Kent County, Delaware**

WATER LEVEL (ft):  **5.0**  **5.0** 
 DATE: **3/30/15** **3/30/15**
 CAVED (ft): **In Auger** **N/A**

DATE STARTED: **3/30/15**
 DATE COMPLETED: **3/30/15**
 DRILLING CONTRACTOR: **GTA**
 DRILLER: **D. Hans**
 DRILLING METHOD: **Tripod Acker**
 SAMPLING METHOD: **Split Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) **5.0**
 GROUND SURFACE ELEVATION: **2**
 DATUM: **Google Earth**
 EQUIPMENT:
 LOGGED BY: **C. Costanzi**
 CHECKED BY: **M. Lester**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
									DESCRIPTION	REMARKS
					2.0	0	SP		Gray, moist, very loose, Poorly-graded SAND	
S-1	0.0	10	2-2-2	4					Same, wet	
S-2	2.5	12	2-2-2	4			5		Same, wet	
S-3	5.0	10	2-1-1	2			-6.0	OL	Dark gray, wet, very soft, Organic SILT	
							10			
S-4	8.0	18	WH/18				15		Same	
S-5	13.5	18	WH/18				20		Same	
S-6	18.5	18	WH/18			25		Same		
S-7	23.5	18	WH/18		-23.0			Boring terminated at 25.0 feet.		

NOTES: **Elevation and location should be considered approximate.**



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 New Castle, DE 19720




LOG OF BORING NO. MR-2

Sheet 1 of 1

LOG OF BORING NO. MR-3



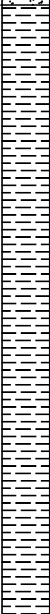
Sheet 1 of 1

PROJECT: **Mispillion Complex**
 PROJECT NO.: **150369**
 PROJECT LOCATION: **Kent County, Delaware**

WATER LEVEL (ft):  **6.0**  **6.0** 
 DATE: **3/31/15** **3/31/15**
 CAVED (ft): **In Auger** **N/A**

DATE STARTED: **3/31/15**
 DATE COMPLETED: **4/1/15**
 DRILLING CONTRACTOR: **GTA**
 DRILLER: **D. Hans**
 DRILLING METHOD: **Tripod Acker**
 SAMPLING METHOD: **Split Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) **6.0**
 GROUND SURFACE ELEVATION: **2**
 DATUM: **Google Earth**
 EQUIPMENT:
 LOGGED BY: **C. Costanzi**
 CHECKED BY: **M. Lester**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
									DESCRIPTION	REMARKS
					2.0	0	SP		Gray, moist, loose, Poorly-graded SAND	
S-1	0.0	6	2-2-4	6					Same	
S-2	1.5	12	2-3-3	6						
						5			Same, wet, very loose	
S-3	5.0	14	2-2-2	4						
					-6.5		OL		Dark gray, wet, very soft, Organic SILT	
S-4	8.5	18	WH/18			10				
						15			Same	
S-5	15.0	18	WH/18							
						20			Same	
S-6	20.0	18	WH/18							
						25			Same	
S-7	23.5	18	WH/18		-23.0				Boring terminated at 25.0 feet.	

NOTES: **Elevation and location should be considered approximate.**



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LOG OF BORING NO. MR-3

Sheet 1 of 1

LOG OF BORING NO. MR-4



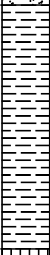
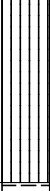
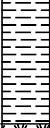

Sheet 1 of 1

PROJECT: **Mispillion Complex**
 PROJECT NO.: **150369**
 PROJECT LOCATION: **Kent County, Delaware**

WATER LEVEL (ft):  **6.0**  **6.0** 
 DATE: **4/1/15** **4/1/15**
 CAVED (ft): **In Auger** **N/A**

DATE STARTED: **4/1/15**
 DATE COMPLETED: **4/1/15**
 DRILLING CONTRACTOR: **GTA**
 DRILLER: **D. Hans**
 DRILLING METHOD: **Tripod Acker**
 SAMPLING METHOD: **Split Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) **6.0**
 GROUND SURFACE ELEVATION: **2**
 DATUM: **Google Earth**
 EQUIPMENT:
 LOGGED BY: **C. Costanzi**
 CHECKED BY: **M. Lester**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
									DESCRIPTION	REMARKS
					2.0	0	SP		Gray, moist, very loose, Poorly-graded SAND	
S-1	0.0	12	2-2-2	4					Same, loose with gravel	
S-2	1.5	14	2-3-5	8						
						5			Same, wet, very loose, trace sand	
S-3	5.0	14	3-2-2	4						
					-6.5		OL		Dark gray, wet, very soft, Organic SILT	
S-4	8.5	18	WH/18			10				
					-13.0	15	ML		Dark gray, wet, very soft, Silty SAND	
S-5	15.0	18	2-1-1	2						
S-6	20.0	18	WH/18		-18.0	20	OL		Dark gray, wet, very soft, Organic SILT	
					-21.5		PT		Brown and gray, wet, very soft, PEAT	
S-7	23.5	18	WH/18		-23.0	25			Boring terminated at 25.0 feet.	

NOTES: **Elevation and location should be considered approximate.**



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 New Castle, DE 19720




LOG OF BORING NO. MR-4

Sheet 1 of 1

LOG OF BORING NO. MR-5



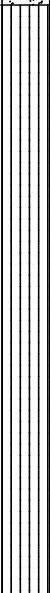
Sheet 1 of 1

PROJECT: **Mispillion Complex**
 PROJECT NO.: **150369**
 PROJECT LOCATION: **Kent County, Delaware**

WATER LEVEL (ft):  **6.0**  **6.0** 
 DATE: **4/2/15** **4/2/15**
 CAVED (ft): **In Auger** **N/A**

DATE STARTED: **4/2/15**
 DATE COMPLETED: **4/2/15**
 DRILLING CONTRACTOR: **GTA**
 DRILLER: **D. Hans**
 DRILLING METHOD: **Tripod Acker**
 SAMPLING METHOD: **Split Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) **6.0**
 GROUND SURFACE ELEVATION: **2**
 DATUM: **Google Earth**
 EQUIPMENT:
 LOGGED BY: **C. Costanzi**
 CHECKED BY: **M. Lester**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL		
									DESCRIPTION	REMARKS
					2.0	0	SP		Gray, moist, loose, Poorly-graded SAND	
S-1	0.0	10	2-2-3	5					Same	
S-2	1.5	12	3-3-4	7						
						5			Same, wet, very loose	
S-3	5.0	16	2-2-1	3						
					-6.5		ML		Dark gray, wet, very soft, SILT, contains organics	
S-4	8.5	18	WH/18			10				
						15			Same, with Sand	
S-5	15.0	18	WH/18-1-1	2						
						20			Same	
S-6	20.0	18	WH/18							
						25			Same	
S-7	23.5	18	WH/18		-23.0				Boring terminated at 25.0 feet.	

NOTES: **Elevation and location should be considered approximate.**



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 New Castle, DE 19720

LOG OF BORING NO. MR-5

Sheet 1 of 1

APPENDIX 2

DNREC SUBAQUEOUS PERMIT & COASTAL MANAGEMENT CONSISTENCY REVIEW



WETLANDS & SUBAQUEOUS
LANDS SECTION

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

TELEPHONE (302) 739-9943
FACSIMILE (302) 739-6304

JAN 21 2016

Receives Fish & Wildlife

JAN 22 2016

Office of the Director

DNREC Division of Fish & Wildlife
c/o: David Saveikis
89 Kings Highway
Dover, DE 19901

RE: Subaqueous Lands Permit No. SP-489/15
Water Quality Certification No. WQ-490/15

Dear Mr. Saveikis:

Enclosed is the Subaqueous Lands Permit and Water Quality Certification granted by the State of Delaware. Please read carefully all Special Conditions. The permittee and contractor are responsible to ensure that all conditions are strictly adhered to.

If you have any questions, please feel free to contact this office at (302) 739-9943.

Sincerely,
Original on File

Steven M. Smailier
Section Manager
Wetlands & Subaqueous Lands Section

Delaware's good nature depends on you!

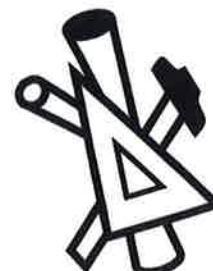


STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FACSIMILE (302) 739-6304

SUBAQUEOUS LANDS PERMIT
CONTRACTOR'S COMPLETION REPORT
POST-CONSTRUCTION



Subaqueous Lands Permit No.: SP-489/15
Water Quality Certification No.: WQ-490/15
Name: David Saveikis

Scientist: Tyler Brown

Project Description: **TO CONDUCT THE FOLLOWING ACTIVITIES:**

- To repair and restore 2, 300 linear feet of an existing stone dike;
- To install 900 linear feet of new stone groins consisting of approximately 12,678 additional tons of stone and to excavate approximately 400 cubic yards of material below the groins;
- To place approximately 57,500 cubic yards of sandy fill in subaqueous lands for beach creation;
- To fill approximately 2,200 linear feet of Greckos Canal with 2,500 cubic yards of fill.
- To plant the filled portion of Greckos Canal with wetland vegetation

**In the Mispillion River and Greckos Canal Adjacent to the DuPont Nature Center, at 2992 Lighthouse Road,
Milford, Kent County, Delaware**

I hereby certify that I have constructed the project authorized by the above-referenced Permit/Lease in accordance with the approved plans for the project.

Printed Name of Contractor

Name of Company

Contractor's Signature

Date

Daytime Telephone Number

Upon completion of construction, this form shall be completed, signed by the contractor, and mailed to the Wetlands and Subaqueous Lands Section at:

**DNREC
Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, Delaware 19901**

Or faxed to the Wetlands and Subaqueous Lands Section at: 302/739-6304

*This form must be received by the Department within **ten days** of the date that construction is completed. Once the form has been received, the Department will call the contractor's telephone number listed above to confirm receipt.*

For official use only

Compliance inspection date _____ **Built in accordance with plans** ☐ Yes ☐ No **Scientist**

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STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FACSIMILE (302) 739-6304

DNREC – Division of Fish and Wildlife
c/o: David Saveikis
89 Kings Highway
Dover, DE 19901
Tax Parcel No.: 5-00-16500-01-0400-00001
5-00-15400-01-0900-00001

Subaqueous Lands Permit: SP-489/15
Water Quality Certification: WQ-490/15
Date of Issuance: 1/21/2016
Construction Expiration Date: 1/21/2019
Amended Date: N/A

**SUBAQUEOUS LANDS PERMIT
AND
WATER QUALITY CERTIFICATION**

GRANTED TO:

DNREC Division of Fish and Wildlife

TO CONDUCT THE FOLLOWING ACTIVITIES:

- To repair and restore 2,300 linear feet of an existing stone dike;
- To install 900 linear feet of new stone groins consisting of approximately 12,678 additional tons of stone and to excavate approximately 400 cubic yards of material below the groins;
- To place approximately 57,500 cubic yards of sandy fill in subaqueous lands for beach creation;
- To fill approximately 2,200 linear feet of Greckos Canal with 2,500 cubic yards of fill.
- To plant the filled portion of Greckos Canal with wetland vegetation

LOCATED ON PUBLICALLY OWNED SUBAQUEOUS LANDS:

**In the Mispillion River and Greckos Canal
Adjacent to the DuPont Nature Center,
at 2992 Lighthouse Road,
Milford, Kent County, Delaware**

Pursuant to the provisions of 7 Del. C. 7205, the Department's Regulations Governing the Use of Subaqueous Lands, 7 Del. C. 6604, the Department's Wetlands Regulations, 7 Del. C., Section 6003, the Department's Regulations Governing the Control of Water Pollution and Section 401 of the Clean Water Act, permission is hereby granted on this 21st day of January A.D. 2016 to perform the above referenced project in accordance with the approved plans for this Permit/Certification (16 Sheets), as approved on January 5, 2016; and application dated November 5, 2015, and received by this Division on November 9, 2015.

WHEREAS, pursuant to the provisions of 7 Del. C. 7203, and 7 Del. C. 6604, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized

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representative finds that it is not contrary to the public interest if this project is approved subject to the terms and conditions herein set forth.

WHEREAS, in accordance with Section 401 of the Clean Water Act, 33 U.S.C. Section 1341 and 7 Del. C., Chapter 60, the State of Delaware, by and through the Department of Natural Resources and Environmental Control, certifies that the permitted activity will be conducted in a manner which will not violate the applicable water quality standards of the State of Delaware, subject to the terms and conditions of this approval.

WHEREAS, DNREC Division of Fish and Wildlife, owners of certain adjoining lands to the Mispillion River and Greckos Canal, has applied for permission to conduct the indicated activities for restoration; and;

NOW THEREFORE, this Permit is issued subject to the attached Subaqueous Lands Permit General Conditions and the following special conditions:

SPECIAL CONDITIONS

1. The permittee shall notify the Department of Natural Resources and Environmental Control within ten (10) days of completion of the work authorized by this Permit/Certification by completing and submitting the enclosed Contractor's Post Construction Completion Report form.
2. The authorized activity in subaqueous lands shall be for the explicit purpose of creating habitat, beach nourishment, and jetty rehabilitation. Any other use without prior written approval shall constitute reason for this Permit/Certification being revoked.
3. To avoid impacts to Red Knots, Horseshoe Crabs, Oystercatchers, Marsh Nesting Birds, and Terrapins please reference the charts below for specific time-of-year restrictions (TOYR) indicated in gray.

Stone Dike

Species of Interest	March		April		May		June		July		August	
Red Knots				15 th			7 th					
Horseshoe Crabs				15 th			7 th					
Oystercatchers		15 th								31 st		
Terrapins												

* See stipulations to TOYR below and special condition #4.

Horseshoe Crabs

- The TOYR have been relaxed for Horseshoe Crabs; therefore, work only for the new terminal groins shall be avoided during the month of June.
- However, if lethal impacts to horseshoe crabs cannot be avoided during rock placement and equipment staging, no work shall take place near high tide, two days before through two days after the new and full moons through the end of June.

Oystercatchers

- If work cannot be conducted outside of the TOYR, the site shall be monitored for oystercatcher presence starting as early as practicable during nesting season (no later

than April 15th). Monitoring shall continue through the nesting season or the completion of the project.

- If work cannot be conducted outside of the TOYR, the project manager shall coordinate with the Species Conservation and Research Program as the start date approaches to determine if any federal migratory bird permits are needed.
- If work cannot be conducted outside of the TOYR, and oystercatchers are observed establishing a nesting territory on the wall, material (e.g. plastic sheeting) should be placed over the wall to deter the birds from laying a nest there.
- If oystercatchers do lay a nest within or in close proximity to the work area, timing of nest initiation and hatching should be documented such that dates of hatching/fledging can be precisely determined.

Beach Restoration and Groins

Species of Interest	March	April	May	June	July	August
Red Knots		15 th		7 th		
Horseshoe Crabs		15 th			1 st	
Oystercatchers	15 th				31 st	
Terrapins			15 th		15 th	

* See stipulations below and special condition #4.

Oystercatchers

- If work cannot be conducted outside of the TOYR, the site shall be monitored for oystercatcher presence starting as early as practicable during nesting season (no later than April 15th). Monitoring shall continue through the nesting season or the completion of the project.
- If work cannot be conducted outside of the TOYR, the project manager shall coordinate with the Species Conservation and Research Program as the start date approaches to determine if any federal migratory bird permits are needed.
- If oystercatchers do lay a nest within or in close proximity to the work area, timing of nest initiation and hatching should be documented such that dates of hatching/fledging can be precisely determined.

Channel Fill

Species of Interest	March	April	May	June	July	August
Marsh Nesting Birds		15 th				30 th

- To avoid impacts to Horseshoe Crabs and Terrapins all stone shall be arranged and chinked in such a way to avoid entrapment.
- The work authorized herein shall be completed in accordance with the terms and conditions of the Department of the Army Permit that is currently pending. A copy of the issued Army Permit, once obtained, shall be provided to the Wetlands and Subaqueous Lands Section.
- Support sand for the beach creation shall be sand of similar grain size to that which currently exists.

7. Planting of vegetation on the newly established beach creation should be kept to a minimum so that suitable oystercatcher nesting habitat is not overrun by thick vegetation, eliminating oystercatcher nesting.
8. DNREC Division of Fish and Wildlife shall, monitor the health and function of the wetlands adjacent to the filled portion of Greckos Canal for a period of three years on, at least, and annual basis. Documentation of the review shall be submitted to the Wetlands and Subaqueous Lands Section., annually for the period of three years.
9. DNREC Division of Fish and Wildlife shall restore function of any degraded wetlands caused by the filling of Greckos Canal, as determined through a joint resolution between DNREC Division of Water and DNREC Division of Fish and Wildlife.
10. The filled portion of Greckos Canal shall be planted with the appropriate wetlands vegetation and monitored for a period of three years.
11. All fill materials associated with the proposed project shall be clean and free from oils, grease, asphalt and other contaminants.
12. There shall be no stockpiling of material within regulated subaqueous lands or State-regulated wetlands.

IN WITNESS WHEREOF, I, Steven M. Smailer, the duly authorized representative of the Secretary of the Department of Natural Resources and Environmental Control, have hereunto set my hand this 21st day of January, 2016.

Original on File

By Steven M. Smailer, Section Manager
the duly authorized representative of the Secretary of the
Department of Natural Resources and Environmental Control

Original on File

Tyler Brown, Program Manager
Wetlands and Subaqueous Lands Section

APPENDIX 3

U.S. ARMY CORPS OF ENGINEERS (USACE) PERMIT



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT CORPS OF ENGINEERS
WANAMAKER BUILDING, 100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107-3390

APR 01 2016

Regulatory Branch
Application Section I

SUBJECT: CENAP-OP-R-2016-19-85 (NWP27)
Project Name: DDNREC Mispillion Harbor Beach Restoration KE
Latitude/Longitude: 38.95166°N/-75.31356°W

Jeremey Ashe
Delaware Department of Natural Resources and Environmental Control
Division of Fish and Wildlife
89 Kings Highway
Dover, Delaware 19901

Dear Mr. Ashe:

This is in regard to your proposal to conduct earthmoving and construction activities in waters of the United States in order to restore horseshoe crab beach nesting habitat and red knot foraging habitat at the Milford Neck Conservation Area and the Mispillion Harbor Complex, in Milford, Kent County, Delaware.

Under current Federal regulations, a Department of the Army permit is required for work or structures in navigable waters of the United States and/or the discharge of dredged or fill material into waters of the United States including their adjacent wetlands.

Based upon our review of the information you have provided, it has been determined that the proposed work is approved by the existing Department of the Army Nationwide Permit (NWP) described in Enclosure 1, provided the work is conducted in compliance with the project specific special conditions listed below and the attached general conditions (Enclosure 2). Initiation of any authorized work shall constitute your agreement to comply with all of the NWP's conditions. You should also note that the authorized work may be subject to periodic inspections by a Corps of Engineers representative. The verification of a nationwide permit including all general and special conditions is not subject to appeal.

On March 16, 2012 the Division Engineer approved several Regional Conditions for NWPs within the Philadelphia District. The enclosed table (Enclosure 3) identifies those NWPs which require a preconstruction notification (PCN) to the Corps of Engineers, those which have been regionally conditioned by the Division Engineer, and those which have been denied 401 Water Quality Certification (WQC) and/or Coastal Zone Management (CZM) consistency by the Delaware Department of Natural Resources and Environmental Control (DDNREC). It should be carefully noted that DDNREC has denied the requisite WQC and CZM for certain NWP

activities in ALL waters of the United States in Delaware. For other NWP activities, DDNREC has denied the requisite WQC and CZM for projects located in waters of the United States which have been determined to be critical resource waters.

For those NWPs for which DDNREC has denied the requisite WQC and CZM, the NWP authorization is considered denied without prejudice by the Corps of Engineers until an individual, project-specific WQC and/or CZM review and approval has been obtained from DDNREC. Furthermore, copies of the WQC and CZM approvals must be provided to the Corps of Engineers before the authorized work begins. Any project-specific conditions required by DDNREC for the WQC and/or CZM approval will automatically become part of the NWP authorization as well.

Please note that CZM consistency from DDNREC is only required for those activities in or affecting Delaware's coastal zone. Additionally, some of the NWPs do not involve a discharge of dredged or fill material and, as such, do not require a 401 WQC. For those NWPs not requiring a 401 WQC, the appropriate rows and columns of the enclosed table (Enclosure 3) have been identified with the term "NA".

PROJECT SPECIFIC SPECIAL CONDITIONS:

1. All work performed in association with the above noted project shall be conducted in accordance with the project plans prepared by Moffatt & Nichol, dated March 2016, entitled: *Delaware Department of Natural Resources and Environmental Control Dover, Delaware Mispillion Complex Project Beach Nourishment and Rock Protection Structures*, 16 Sheets. The stated purpose of the project is to conduct earthmoving and construction activities in waters of the United States in order to restore horseshoe crab beach nesting habitat and red knot foraging habitat at the Milford Neck Conservation Area and the Mispillion Harbor Complex, in Milford, Kent County, Delaware.
2. Any deviation in construction methodology or project design from that shown on the above noted drawings must be approved by this office, in writing, prior to performance of the work. All modifications to the above noted project plans shall be approved, in writing, by this office. No work shall be performed prior to written approval of this office.
3. This office shall be notified at least 10 days prior to the commencement of authorized work by completing and signing the enclosed Notification/ Certification of Work Commencement Form (Enclosure 4). This office shall also be notified within 10 days of the completion of the authorized work by completing and signing the enclosed Notification/Certification of Work Completion/Compliance Form (Enclosure 5). All notifications required by this condition shall be in writing and shall be transmitted to this office by registered mail. Oral notifications are not acceptable. Similar notification is required each time maintenance work is to be done under the terms of this Corps of Engineers permit.
4. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee

will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration. (This special condition is applicable to Corps of Engineers permits that provide authorization under Section 10 of the Rivers and Harbors Act of 1899.)


5. The applicant shall ensure that its contractor(s) will be responsible for all damages to the federal project caused by applicant or applicant's contractor(s) during the duration of the restoration work, and be required to repair such damage in a timely manner to the satisfaction of the U.S. Army Corps of Engineers. The U.S. Army Corps of Engineers shall have a reasonable time, not to exceed 30 days, following completion of the restoration project to notify the applicant of any damage to the federal project with a description of damage and the required repair.
6. The United States Government shall not be responsible for damages to property or injuries to persons which may arise from or be incident to the applicant's or contractor's exercise of activities within the federal project during the duration of the restoration work, and applicant shall ensure that its contractor(s) hold the United States harmless from any and all such claims.
7. The applicant shall keep the U.S. Army Corps of Engineers Project Manager updated on the construction project schedule and progress. Representatives of the U.S. Army Corps of Engineers shall be permitted to inspect the project during its phase of construction, and to collect any samples, or to conduct any tests deemed necessary.
8. Should future maintenance dredging operations within the federal approach channel to Mispillion River be pursued by the U.S. Army Corps of Engineers, it is recommended that the applicant consider utilizing the dredged material beneficially to nourish the proposed construction project area.
9. The permittee is responsible for ensuring that the contractor and/or workers executing the activity(s) authorized by this permit have knowledge of the terms and conditions of the authorization and that a copy of the permit document is at the project site throughout the period the work is underway.
10. The mechanical equipment used to execute the work authorized shall be operated in such a way as to minimize turbidity that could degrade water quality and adversely affect aquatic plant and animal life.
11. The disposal of trees, brush and other debris in any stream corridor, wetland or surface water is prohibited.
12. Every effort shall be made to keep construction debris from entering the waterway or wetland. Debris in the waterway or wetland shall be removed immediately.
13. All material to be used as fill shall be obtained from an upland source. The fill material shall be free of oil and grease, debris, wood, general refuse, plaster, and other pollutants, and shall contain no broken asphalt.

14. Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date
15. The movement of equipment within the wetland shall be limited to the minimum necessary to accomplish the work authorized herein.
16. Work on the stone dike shall not occur from April 15 to June 7 in order to protect the horseshoe crab (*Limulus Polyphemus*) and the federally threatened red knot (*Calidris canutus rufa*).
17. Beach fill and groin work shall not occur from April 15 to July 1 in order to protect the horseshoe crab (*Limulus Polyphemus*) and the federally threatened red knot (*Calidris canutus rufa*).
18. A post construction monitoring plan shall be drafted prior to completion of the project.
19. This permit does not obviate the permittee from obtaining any State or local approvals required by law for the activity authorized.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 16, 2017. It is incumbent upon the permittee to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

Also enclosed is a pre-addressed postal card (Enclosure 6) soliciting your comments on the processing of your application. Any comments, positive or otherwise, on the procedures, timeliness, fairness, etc., may be made on this card. If you have any questions regarding this matter, please contact Michael Yost at 302-736-9763 or write to the above address.

Sincerely,
Original on File

 Samuel L. Keynolds
Acting Chief, Regulatory Branch

Enclosures

2012 Nationwide Permits

NWP 27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services. To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms, are removed; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches to restore wetland hydrology; the installation of structures or fills necessary to establish or re-establish wetland or stream hydrology; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or disking for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; re-establishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site. This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.

Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted: (1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies; (2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities). The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands

2012 Nationwide Permits

that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of: (1) The binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map; (2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or (3) the SMCRA permit issued by OSMRE or the applicable state agency. The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 31), except for the following activities:

- (1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement between the landowner and the U.S. FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;
- (2) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or
- (3) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency. However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement. (Sections 10 and 404)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

Nationwide Permit General Conditions (2012)

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States. (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any “take” permits required under the U.S. Fish and Wildlife Service’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such “take” permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those

waters. The district engineer may authorize activities under these NWP only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature: "When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

- (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
- (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
- (c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification. (a) **Timing.** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special

conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWP 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's

compliance with the terms and conditions of the NWP, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

NWP CZM and WQC Status Table: Delaware, New Jersey, Pennsylvania (4.4.2012)

NWP #	PCN	DE CZM	DE WQC	NJ CZM	NJ WQC	PA CZM	PA WQC
NWP 1	NO	ISSUED	N/A				
NWP 2	NO	ISSUED	N/A				
NWP 3	YES *	DENIED #	DENIED #				
NWP 4	NO	ISSUED	ISSUED				
NWP 5	NO	ISSUED	ISSUED				
NWP 6	NO	ISSUED	ISSUED				
NWP 7	YES	ISSUED	ISSUED				
NWP 8	YES	DENIED	N/A				
NWP 9	NO	ISSUED	N/A				
NWP 10	YES *	ISSUED	N/A				
NWP 11	YES*	ISSUED	N/A				
NWP 12	YES	ISSUED	ISSUED				
NWP 13	YES *	DENIED #	DENIED #				
NWP 14	YES	ISSUED	ISSUED				
NWP 15	YES *	ISSUED	ISSUED				
NWP 16	NO	ISSUED	ISSUED				
NWP 17	YES	ISSUED	ISSUED				
NWP 18	YES *	DENIED #	DENIED #				
NWP 19	YES	ISSUED	ISSUED				
NWP 20	NO	ISSUED	ISSUED				
NWP 21	YES	ISSUED	ISSUED				
NWP 22	YES *	ISSUED	ISSUED				
NWP 23	YES	ISSUED	ISSUED				
NWP 24	NO	ISSUED	N/A				
NWP 25	YES *	ISSUED	ISSUED				
NWP 27	YES *	ISSUED	ISSUED				
NWP 28	YES	ISSUED	N/A				
NWP 29	YES	DENIED #	DENIED #				
NWP 30	YES *	ISSUED	ISSUED				
NWP 31	YES	ISSUED	ISSUED				
NWP 32	N/A	ISSUED	ISSUED				
NWP 33	YES	ISSUED	ISSUED				
NWP 34	YES	ISSUED	ISSUED				
NWP 35	YES	ISSUED	N/A				
NWP 36	YES *	ISSUED	ISSUED				
NWP 37	YES	ISSUED	ISSUED				
NWP 38	YES	ISSUED	ISSUED				
NWP 39	YES	DENIED #	DENIED #				
NWP 40	YES	DENIED	DENIED				
NWP 41	YES	DENIED	DENIED				
NWP 42	YES	DENIED	DENIED				
NWP 43	YES	DENIED	DENIED				
NWP 44	YES	DENIED	DENIED				
NWP 45	YES	ISSUED	ISSUED				
NWP 46	YES	DENIED	DENIED				
NWP 48	YES	ISSUED	ISSUED				
NWP 49	YES	ISSUED	ISSUED				
NWP 50	YES	ISSUED	ISSUED				
NWP 51	YES	DENIED	DENIED				
NWP 52	YES	DENIED	DENIED				

Note: * A PCN is required under certain circumstances. Review the terms of the NWP, general conditions, or regional conditions to identify those circumstances. # The State of Delaware has denied the CZM and WQC for this NWP in critical resource waters only.

NOTIFICATION/CERTIFICATION OF WORK COMMENCEMENT FORM

Permit Number: CENAP-OP-R-2016-19-85 (NWP27)
Name of Permittee: DDNREC Division of Fish and Wildlife
Project Name: DDNREC Mispillion Harbor Beach Restoration KE
Waterway: Mispillion River/Cedar Creek
County: Kent State: Delaware
Compensation/Mitigation Work Required: Yes ☐ No ☒

TO: U.S. Army Corps of Engineers, Philadelphia District
Wanamaker Building - 100 Penn Square East
Philadelphia, Pennsylvania 19107-3390
Attention: CENAP-OP-R

I have received authorization to conduct earthmoving and construction activities in waters of the United States in order to restore horseshoe crab beach nesting habitat and red knot foraging habitat at the Milford Neck Conservation Area and the Mispillion Harbor Complex, in Milford, Kent County, Delaware.

The work will be performed by:

Name of Person or Firm _____

Address: _____

I hereby certify that I have reviewed the approved plans, have read the terms and conditions of the above referenced permit, and shall perform the authorized work in strict accordance with the permit document. The authorized work will begin on or about _____ and should be completed on or about _____.

Please note that the permitted activity is subject to compliance inspections by the Army Corps of Engineers. If you fail to return this notification form or fail to comply with the terms or conditions of the permit, you are subject to permit suspension, modification, revocation, and/or penalties.

Permittee (Signature and Date)

Telephone Number

Contractor (Signature and Date)

Telephone Number

NOTE: This form shall be completed/signed and returned to the Philadelphia District Office a minimum of 10 days prior to commencing work.

NOTIFICATION/CERTIFICATION OF WORK COMPLETION/COMPLIANCE FORM

Permit Number: CENAP-OP-R-2016-19-85 (NWP27)
Name of Permittee: DDNREC Division of Fish and Wildlife
Name of Contractor: _____
Project Name: DDNREC Mispillion Harbor Beach Restoration KE
County: Kent State: Delaware
Waterway: Mispillion River/Cedar Creek

Within 10 days of completion of the activity authorized by this permit, please sign this certification and return it to the following address:

U.S. Army Corps of Engineers, Philadelphia District
Wanamaker Building - 100 Penn Square East
Philadelphia, Pennsylvania 19107-3390
Attention: CENAP-OP-R

Please note that the permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to return this notification form or fail to perform work in compliance with the permit, you are subject to administrative, civil and/or criminal penalties. Further, the subject permit may be suspended or revoked.

The authorized work was commenced on _____.

The authorized work was completed on _____.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the above noted permit.

Signature of Contractor

Signature of Permittee

Address: _____

Address: _____

Telephone Number: _____

Telephone Number: _____

For project located in areas identified as shellfish habitat, you must include with this form a bill of lading; sales order or any other document(s) demonstrating non-polluting materials were purchased and utilized for your project. I hereby certify that I and/or my contractor have utilized non-polluting materials as defined in the above noted permit.

Signature of Contractor

Signature of Permittee