

CONTRACT DOCUMENTS AND SPECIFICATIONS

for

Public Works Stormwater Pipe
Improvements Phase 1
July 2023
WKD #20220983.00.RA

Prepared for

City of Greenville
1500 Beatty Street
Greenville, NC 27834

Released for Bid

Plans & Specifications
Prepared by
W.K. Dickson & Co., Inc.
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NC License No. F-0374

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City of Greenville, North Carolina
Public Works Stormwater Pipe
Improvements Phase 1 WKD Project
#20220983.00.RA

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City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number: 20220983.00.RA

ADVERTISEMENT FOR BIDS

City of Greenville
Greenville, North Carolina
Public Works Stormwater Pipe Improvements Phase 1

General Notice

City of Greenville (Owner) is requesting Bids for the construction of the following Project:

Public Works Stormwater Pipe Improvements Phase 1

WKD Project Number 20220983.00.RA

Bids for the construction of the Project will be received at the **City of Greenville** located at **1500 Beatty Street, Greenville, NC 27834**, until **Wednesday, August 23rd, 2023 at 10:00 AM** local time. At that time the Bids received will be **"publicly"** opened and read.

The Project includes the following Work:

Public Works Stormwater Pipe Improvements Phase 1 project includes re-routing, replacing and upsizing the existing storm drainage system and replacing and re-routing existing utilities in order to install the new storm drainage system from Beatty Street to approximately 1,300' feet upstream of Beatty Street within the general area of the City of Greenville Public Works Yard. Utility coordination, traffic control, and erosion control are also included within the scope of this project.

Bids are requested for the following Contract: **Public Works Stormwater Pipe Improvements Phase 1**

The Project has an expected substantial completion duration of **426** days and a total contract duration of **456** days.

Obtaining the Bidding Documents

Information and Bidding Documents for the Project can be found at the following designated website:

<http://www.wkdicksonplanroom.com/View/Default.aspx>

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

The Issuing Office for the Bidding Documents is:

W.K. Dickson & Co., Inc.
720 Corporate Center Drive
Raleigh, NC 27607

City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number: 20220983.00.RA

Prospective Bidders may obtain or examine the Bidding Documents at the Issuing Office Monday through Thursday between the hours of **8AM-5PM**, and Friday **8AM-Noon**, and may obtain copies of the Bidding Documents from the Issuing Office as described below. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the Issuing Office.

Plans, specifications and contract documents are available for purchase by going to the Plan Room at www.wkdickson.com. Please note only registered plan holders may bid as General Contractors.

Pre-bid Conference

A pre-bid conference for the Project will be held on **Monday, July 17th, 2023 at 10:00 AM at City of Greenville, 1500 Beatty Street, Greenville, NC 27834**. Attendance at the pre-bid conference is **encouraged but not required**.

Instructions to Bidders.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

This Advertisement is issued by:

Owner: City of Greenville
By: Kevin Mulligan
Title: **Director of Public Works**
Date: **July 12th, 2023**

DOCUMENT 00 31 00
AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.1 SUMMARY

A. Document Includes information available for bidders:

1. ARPA Funding Contract (Coronavirus State and Local Fiscal Recovery Funds Addendum)
2. Title VI of the Civil Rights Act of 1964 Nondiscrimination Provisions, Appendices A & E
3. Work Experience and Professional Qualifications Forms

1.2 ARPA FUNDING CONTRACT

- A. Contract language for the ARPA funding received in associated with this project.

1.3 TITLE VI OF THE CIVIL RIGHTS ACT OF 1964 NONDISCRIMINATION PROVISIONS, APPENDICES A & E

1.4 WORK EXPERIENCE AND PROFESSIONAL QUALIFICATIONS FORMS

- A. Required forms associated with the Special Provision “Work Experience and Professional Qualifications”.

END OF SECTION

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CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS ADDENDUM

This **CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS ADDENDUM** (this “Addendum”) is entered into by and between _____ (“Contractor”), and City of Greenville (“Unit”), and forms an integral part of the Contract (as defined in Section I hereof).

RECITALS

WHEREAS, Unit has received, either as a Recipient or Subrecipient (as each such term is defined in Section I hereof) a payment from the Coronavirus State Fiscal Recovery Fund (“State Fiscal Recovery Fund”) or Coronavirus Local Fiscal Recovery Fund (“Local Fiscal Recovery Fund” and, together with the State Fiscal Recovery Fund, the “Fiscal Recovery Funds”) established pursuant to Sections 602 and 603, respectively, of the Social Security Act, as added by Section 9901 of the American Rescue Plan Act of 2021, Pub. L. No. 117-2 (“ARPA”); and

WHEREAS, Unit intends to pay, in part or in whole, for the cost of the Contract (as defined in Section I hereof) using monies received from the Fiscal Recovery Funds; and

WHEREAS, in using such funds, Unit must comply with the terms of ARPA, regulations issued by the U.S. Department of the Treasury (“Treasury”) governing the expenditure of monies distributed from the Fiscal Recovery Funds (including, without limitation, the Interim Final Rule (86 Fed. Reg. 26,786 (May 17, 2021) and Final Rule (87 Fed. Reg. 4,338 (Jan. 27, 2022))), the Award Terms and Conditions applicable to the Fiscal Recovery Funds, and such other guidance as Treasury has issued or may issue governing the expenditure of monies distributed from the Fiscal Recovery Funds (collectively, the “Regulatory Requirements”); and

WHEREAS, pursuant to the Regulatory Requirements, Unit must comply with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200, other than such provisions as Treasury has determined or may determine are inapplicable to the Fiscal Recovery Funds; and

WHEREAS, pursuant to 2 C.F.R. § 200.327, Unit must include within the Contract applicable provisions described in Appendix II to 2 C.F.R. Part 200, each of which is contained in this Addendum; and

WHEREAS, Unit shall not enter into the Contract or make any distributions of funds to Contractor using monies from the Fiscal Recovery Funds absent Contractor’s agreement and adherence to each term and condition contained herein.

NOW THEREFORE, Contractor and Unit do mutually agree as follows:

AGREEMENTS

Definitions

- A. Unless otherwise defined in this Addendum, capitalized terms used in this Addendum shall have the meanings ascribed thereto in this Section I.
1. “ARPA” shall mean the American Rescue Plan Act of 2021, Pub. L. No. 117-2, as amended.
 2. “Administering Agency” shall have the meaning specified in 41 C.F.R. § 60-1.3.
 3. “Applicant” shall have the meaning specified in 41 C.F.R. § 60-1.3, which is provided here for ease of reference: (“An applicant for Federal assistance involving a construction contract, or other participant in a program involving a construction contract as determined by regulation of an administering agency. The term also includes such persons after they become recipients of such Federal assistance.”).
 4. “Construction Work” shall have the meaning specified in 41 C.F.R. § 60-1.3, which is provided here for ease of reference: (“[T]he construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction.”).
 5. “Contract” shall mean the legal instrument by which Unit, as a Recipient or Subrecipient, shall purchase from Contractor property or services needed to carry out a project or program under a federal award, and of which this Addendum shall constitute an integral part.
 6. “Contractor” shall mean the entity named as “Contractor” in this Addendum that has received a Contract from Unit.
 7. “Federally Assisted Construction Contract” shall have the meaning specified in 41 C.F.R. § 60-1.3, which is provided here for ease of reference: (“[A]ny agreement or modification thereof between any applicant and a person for construction work which is paid for in whole or in part with funds obtained from the Government or borrowed on the credit of the Government pursuant to any federal program involving a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any federal program involving such grant, contract, loan, insurance, or guarantee, or any application or modification thereof approved by the government of the United States of America for a grant, contract, loan, insurance, or guarantee under which the applicant itself participates in the construction work.”).
 8. “Government” shall have the meaning specified in 41 C.F.R. § 60-1.3, which is provided here for ease of reference: (“[T]he government of the United States of America.”).
 9. “Laborer” or “Mechanic” shall have the meaning specified in 29 C.F.R. § 5.2(m), which is provided here for ease of reference: (“The term *laborer* or *mechanic* includes at least those workers whose duties are manual or physical in nature (including those workers who use tools or who are performing the work of a trade), as distinguished from mental or managerial. The

term *laborer* or *mechanic* includes apprentices, trainees, helpers, and, in the case of contracts subject to the Contract Work Hours and Safety Standards Act, watchmen or guards. The term does not apply to workers whose duties are primarily administrative, executive, or clerical, rather than manual. Persons employed in a bona fide executive, administrative, or professional capacity as defined in part 541 of [Title 40 of the United States Code] are not deemed to be laborers or mechanics. Working foremen who devote more than 20 percent of their time during a workweek to mechanic or laborer duties, and who do not meet the criteria of [Title 40 of the United States Code], are laborers and mechanics for the time so spent.”).

10. “Recipient” shall mean an entity that receives a federal award directly from a federal awarding agency. The term does not include subrecipients or individuals that are beneficiaries of an award.
11. “Subcontract” shall mean any agreement entered into by a Subcontractor to furnish supplies or services for the performance of this Contract or a Subcontract. It includes, but is not limited to, purchase orders and changes and modifications to purchase orders.
12. “Subcontractor” shall mean an entity that receives a Subcontract.
13. “Subrecipient” shall mean an entity that receives a subaward from a pass-through entity to carry out part of a federal award; but it does not include an individual that is a beneficiary of such award. A subrecipient may also be a recipient of other federal awards directly from a federal awarding agency.
14. “Tier” shall have the meaning indicated in 2 C.F.R. Part 180 and illustrated in 2 C.F.R. Part 180, Appendix II.
15. “Unit” shall have the meaning indicated in the preamble to this Addendum.

Equal Employment Opportunity

- A. If this contract is a Federally Assisted Construction Contract exceeding \$10,000, during the performance of this Contract, Contractor agrees as follows:
 1. Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. Contractor will, in all solicitations or advertisements for employees placed by or on behalf of Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
3. Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with Contractor's legal duty to furnish information.
4. Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
5. Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
6. Contractor will furnish to the Administering Agency and the Secretary of Labor all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the Administering Agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
7. In the event of Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended, in whole or in part, and Contractor may be declared ineligible for further Government contracts or Federally Assisted Construction Contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965. Such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
8. Contractor will include the portion of the sentence immediately preceding paragraph A.1. of this Section II and the provisions of paragraphs A.1. through A.7. in every Subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. Contractor will take such action with respect to any Subcontract or purchase order as the Administering Agency may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event Contractor becomes involved in, or is threatened with,

litigation with a Subcontractor or vendor as a result of such direction by the Administering Agency, Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Unit further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work. Provided, that if Unit so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government which does not participate in work on or under the Contract.

9. Unit agrees that it will assist and cooperate actively with the Administering Agency and the Secretary of Labor in obtaining the compliance of Contractor and any Subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor; that it will furnish the Administering Agency and the Secretary of Labor such information as they may require for the supervision of such compliance; and that it will otherwise assist the Administering Agency in the discharge of the agency's primary responsibility for securing compliance.
 10. Unit further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and Federally Assisted Construction Contracts pursuant to the Executive Order and that it will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractor and any Subcontractors by the Administering Agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, Unit agrees that if it fails or refuses to comply with these undertakings, the Administering Agency may take any or all of the following actions: Cancel, terminate, or suspend, in whole or in part, this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.
- B. If this Contract is not a Federally Assisted Construction Contract exceeding \$10,000, the provisions of Section I.A. of this Addendum shall not apply.

Copeland "Anti-Kickback" Act

- A. Contractor and any Subcontractors performing work under the Contract shall comply with 18 U.S.C. § 874. Unit shall report all suspected or reported violations to Treasury.

Contract Work Hours and Safety Standards Act

- A. *Overtime Requirements.* No Contractor or Subcontractor contracting for any part of the Contract work which may require or involve the employment of Laborers or Mechanics shall require or permit any such Laborer or Mechanic in any workweek in which he or she is employed on such

work to work in excess of forty hours in such workweek unless such Laborer or Mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

- B. *Violation; Liability for Unpaid Wages; Liquidated Damages.* In the event of any violation of the clause set forth in Section IV.A. (Overtime Requirements), above, Contractor and any Subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and Subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual Laborer or Mechanic, including watchmen and guards, employed in violation of the clause set forth in Section IV.A. (Overtime Requirements), above, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in Section IV.A. (Overtime Requirements), above.
- C. *Withholding for Unpaid Wages and Liquidated Damages.* Unit shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold, or cause to be withheld, from any moneys payable on account of work performed by Contractor or Subcontractor under any such contract or any other federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of Contractor or Subcontractor for unpaid wages and liquidated damages as provided in Section IV.B. (Violation; Liability for Unpaid Wages; Liquidated Damages) of this section.
- D. *Subcontracts.* Contractor or Subcontractor shall insert in any Subcontract the clauses set forth in Sections IV.A. through IV.D. and also a clause requiring Subcontractors to include these clauses in any lower-Tier Subcontracts. Contractor shall be responsible for compliance by any first-Tier Subcontractor or lower-Tier Subcontractor with the clauses set forth in Sections IV.A. through IV.D.
- E. *Payroll and Records.* Contractor or Subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the Contract for all Laborers and Mechanics, including guards and watchmen, working on the Contract. Such records shall contain the name and address of each such employee, Social Security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Records to be maintained under this provision shall be made available by Contractor or Subcontractor for inspection, copying, or transcription by authorized representatives of the Department of the Treasury and the Department of Labor, and Contractor or Subcontractor will permit such representatives to interview employees during working hours on the job.
- F. *Exceptions.* None of the requirements of Section IV of this Addendum shall apply if this Contract is a Contract (1) for transportation by land, air, or water; (2) for the transmission of intelligence;

(3) for the purchase of supplies, materials, or articles ordinarily available in the open market; or (4) in an amount that is equal to or less than \$100,000.

Rights to Inventions Made Under a Contract or Agreement

- A. The Government reserves a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use for “Government purposes,” any subject data or copyright described below.¹ “Government purposes” means use only for the direct purposes of the Government. Without the copyright owner’s consent, the Government may not extend its federal license to any other party.
 - 1. Any subject data developed under the Contract, whether or not a copyright has been obtained, and
 - 2. Any rights of copyright purchased by Contractor using federal assistance funded in whole or in part by the Department of the Treasury.
- B. Unless Treasury determines otherwise, a Contractor performing experimental, developmental, or research work required as part of this Contract agrees to permit Treasury to make available to the public either (1) Treasury’s license in the copyright to any subject data developed in the course of the Contract or (2) a copy of the subject data first produced under the Contract for which a copyright has not been obtained. If the experimental, developmental, or research work which is the subject of this Contract is not completed for any reason whatsoever, all data developed under the Contract shall become subject data as defined herein and shall be delivered as the Government may direct.
- C. Unless prohibited by North Carolina law, upon request by the Government, Contractor agrees to indemnify, save, and hold harmless the Government, its officers, agents, and employees acting within the scope of their official duties against any liability, including costs and expenses, resulting from any willful or intentional violation by Contractor of proprietary rights, copyrights, or right of privacy arising out of the publication, translation, reproduction, delivery, use, or disposition of any data furnished under the Contract. Contractor shall be required to indemnify the Government for any such liability arising out of the wrongful act of any employee, official, or agent of the Contractor.
- D. Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government under any patent.
- E. Data developed by Contractor and financed entirely without using federal assistance provided by the Government that has been incorporated into work required by the underlying Contract is exempt from the requirements herein, provided that Contractor identifies those data in writing at the time of delivery of the Contract work. Contractor agrees to include these requirements in each

Subcontract for experimental, developmental, or research work financed in whole or in part with federal assistance.

- F. For the purposes of this Section V, “subject data” means “recorded information, whether or not copyrighted, that is delivered or specified to be delivered as required by the Contract.” Examples of “subject data” include, but are not limited to, “computer software, standards, specifications, engineering drawings and associated lists, process sheets, manuals, technical reports, catalog item identifications, and related information, but do not include financial reports, cost analyses or other similar information used for performance or administration of the Contract.”

Clean Air Act and Federal Water Pollution Control Act

- A. *Clean Air Act*. Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 *et seq.* Contractor agrees to report each violation to Unit and understands and agrees that Unit will, in turn, report each violation as required to Treasury and the appropriate Environmental Protection Agency Regional Office. Contractor agrees to include these requirements in each Subcontract exceeding \$150,000 financed, in whole or in part, with federal assistance provided by Treasury.
- B. *Federal Water Pollution Control Act*. Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 *et seq.* Contractor agrees to report each violation to Unit and understands and agrees that Unit will, in turn, report each violation as required to assure notification to Treasury and the appropriate Environmental Protection Agency Regional Office. Contractor agrees to include these requirements in each Subcontract exceeding \$150,000 financed, in whole or in part, with federal assistance provided by Treasury.

Debarment and Suspension

- A. Due to its receipt of Fiscal Recovery Funds, Unit is a participant in a nonprocurement transaction (defined at 2 C.F.R. § 180.970) that is a covered transaction pursuant to 2 C.F.R. § 180.210 and 31 C.F.R. § 19.210. Therefore, this Contract is a lower-Tier covered transaction for purposes of 2 C.F.R. Part 180 and 31 C.F.R. Part 19 if (1) the amount of this Contract is greater than or equal to \$25,000 (2 C.F.R. § 180.220(b)(1); 31 C.F.R. § 19.220(b)(1)); (2) the Contract requires the consent of an official of the Department of the Treasury (2 C.F.R. § 180.220(b)(2); 31 C.F.R. § 19.220(b)(2)); or (3) this Contract is for federally required audit services (2 C.F.R. § 180.220(b)(3); 31 C.F.R. § 19.220(b)(3)).
- B. If this Contract is a covered transaction as set forth in Section VII.A., above, Contractor hereby certifies as of the date hereof that Contractor, Contractor’s principals (defined at 2 C.F.R. § 180.995), and the affiliates (defined at 2 C.F.R. § 180.905) of both Contractor and Contractor’s principals are not excluded (defined at 2 C.F.R. § 180.935) and are not disqualified (defined at 2 C.F.R. § 180.935). If any of the foregoing persons are excluded or disqualified and the Secretary of the Treasury has not granted an exception pursuant to 31 C.F.R. § 19.120(a), (1) this Contract

shall be void, (2) Unit shall not make any payments of federal financial assistance to Contractor, and (3) Unit shall have no obligations to Contractor under this Contract.

- C. Contractor must comply with 2 C.F.R. Part 180, Subpart C and 31 C.F.R. Part 19 and must include a requirement to comply with these regulations in any lower-Tier covered transaction into which it enters.² This certification is a material representation of fact relied upon by Unit, and all liability arising from an erroneous representation shall be borne solely by Contractor.
- D. If it is later determined that Contractor did not comply with 2 C.F.R. Part 180, Subpart C and 31 C.F.R. Part 19, in addition to remedies available to Unit, the Government may pursue available remedies, including but not limited to suspension and/or debarment.

Byrd Anti-Lobbying Amendment

- A. Contractor certifies to Unit, and Contractor shall cause each Tier below it to certify to the Tier directly above such Tier, that it has not used and will not use federally appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Contractor shall, and shall cause each Tier below it, to disclose any lobbying with non-federally appropriated funds that takes place in connection with obtaining any federal award. Such disclosures (to be set forth on Standard Form-LLL, contained in 31 C.F.R. Part 21, Appendix B) shall be forwarded from Tier to Tier up to the Unit, which will, in turn, forward the certification(s) to Treasury. Contractor shall cause the language of this Section VIII.A. to be included in all Subcontracts. This certification is a material representation of fact upon which Unit has relied when entering into this Contract, and all liability arising from an erroneous representation shall be borne solely by Contractor.
- B. Contractors that bid or apply for a contract exceeding \$100,000 (including this Contract, if applicable) also must file with Unit the certification in Attachment 1 to this Addendum, which is attached hereto and incorporated herein.
- C. Contractor also shall cause any Subcontractor with a Subcontract (at any Tier) exceeding \$100,000 to file with the Tier above it the certification in Attachment 1 to this Addendum, which is attached hereto and incorporated herein.

Procurement of Recovered Materials

- A. Section IX.B. shall apply if (1) this Contract involves the purchase of an item designated by the Environmental Protection Agency (“EPA”) in 40 C.F.R. Part 247 that exceeds \$10,000 or (2) the total value of such designated items acquired during Unit’s preceding fiscal year exceeded \$10,000.
- B. In the performance of the Contract, Contractor shall make maximum use of products containing recovered materials that are EPA-designated items, unless the product cannot (1) be acquired

competitively within a timeframe providing for compliance with the Contract performance schedule, (2) meet Contract performance requirements, or (3) be acquired at a reasonable price. Information about this requirement, along with the list of EPA-designated items, is available on EPA's website.³ Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

Prohibition on Contracting for Covered Telecommunications Equipment or Services

- A. *Definitions.* Unless otherwise defined in this Contract, capitalized terms used in this Section X shall have the meanings ascribed thereto in this Section X.A.
1. "Backhaul" means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).
 2. "Covered Foreign Country" means the People's Republic of China.
 3. "Covered Telecommunications Equipment or Services" means (a) telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities); (b) for the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities); (c) telecommunications or video surveillance services provided by such entities or using such equipment; or (d) telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a Covered Foreign Country.
 4. "Critical Technology"⁴ means (1) defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations; (2) items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations and controlled (a) pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology, or (b) for reasons relating to regional stability or surreptitious listening; (3) specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities); (4) nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of
-

nuclear equipment and material); (5) select agents and toxins covered by part 331 of title 7, Code of Federal Regulations; part 121 of title 9 of such Code; or part 73 of title 42 of such Code; or (6) emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. § 4817).

5. “Interconnection Arrangements” means arrangements governing the physical connection of two or more networks to allow the use of another’s network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.
6. “Roaming” means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.
7. “Substantial or Essential Component” means any component necessary for the proper function or performance of a piece of equipment, system, or service.
8. “Telecommunications Equipment or Services” means telecommunications or video surveillance equipment or services, such as, but not limited to, mobile phones, land lines, internet, video surveillance, and cloud services.

B. Prohibitions.

1. Section 889(b) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, and 2 C.F.R. § 200.216 prohibit the head of an executive agency on or after August 13, 2020, from obtaining or expending grant, cooperative agreement, loan, or loan guarantee funds on certain telecommunications products or from certain entities for national security reasons.
2. Unless an exception in Section X.C. applies, Contractor and any Subcontractors may not use grant, cooperative agreement, loan, or loan guarantee funds (including, without limitation, Fiscal Recovery Funds) received from a federal government to:
 - a. Procure or obtain any equipment, system, or service that uses Covered Telecommunications Equipment or Services as a Substantial or Essential Component of any system or as Critical Technology of any system;
 - b. Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses Covered Telecommunications Equipment or Services as a Substantial or Essential Component of any system or as Critical Technology of any system;
 - c. Enter into, extend, or renew contracts with entities that use Covered Telecommunications Equipment or Services as a Substantial or Essential Component of any system or as Critical Technology as part of any system; or
 - d. Provide, as part of its performance of this Contract, any Subcontract; any other contractual instrument; or any equipment, system, or service that uses Covered

Telecommunications Equipment or Services as a Substantial or Essential Component of any system or as Critical Technology as part of any system.

C. Exceptions.

1. This clause does not prohibit Contractor or Subcontractors from providing:
 - a. A service that connects to the facilities of a third party, such as Backhaul, Roaming, or Interconnection Agreements, or
 - b. Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.
2. By necessary implication and regulation, the prohibitions also do not apply to:
 - a. Covered telecommunications equipment that:
 - i. Is not used as a Substantial or Essential Component of any system and
 - ii. Is not used as Critical Technology of any system.
 - b. Other telecommunications equipment or services that are not considered Covered Telecommunications Equipment or Services.

D. Reporting Requirement

1. In the event Contractor identifies, during contract performance, covered Telecommunications Equipment or Services used as a Substantial or Essential Component of any system or as Critical Technology as part of any system, or if Contractor is notified of such by a Subcontractor at any Tier or by any other source, Contractor shall report the information in paragraph D.2 (d)(2) of this Section X to Unit, unless procedures for reporting the information are established elsewhere in this Contract.
2. Contractor shall report the following information to Unit pursuant to paragraph D.1 of this Section X:
 - a. Within one business day from the date of such identification or notification: contract number; order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.
 - b. Within ten business days of submitting the information in paragraph D.2.a. of this Section: any further available information about mitigation actions undertaken or recommended. In addition, Contractor shall describe (i) the efforts it undertook to prevent use or submission of Covered Telecommunications Equipment or Services and (ii) any

additional efforts that will be incorporated to prevent future use or submission of Covered Telecommunications Equipment or Services.

- E. *Subcontractor*. Contractor shall cause to be inserted into all Subcontracts and other contractual instruments relating to the performance of this Contract the substance of this Section X, including this paragraph E.

Domestic Preferences for Procurements

- A. For purposes of this Section XI, the terms below are defined as follows:
 - 1. “Produced in the United States” means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coating, occurred in the United States.
 - 2. “Manufactured Products” means items and construction materials composed, in whole or in part, of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.
- B. As applicable, and to the extent consistent with law, Contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products or materials Produced in the United States. This includes, but is not limited to, iron, aluminum, steel, cement, and other Manufactured Products. Contractor shall cause any Subcontractors to include the requirements of this Section XI in any Subcontracts.

Solicitation of Minority and Women-Owned Business Enterprises

- A. If Contractor intends to let any Subcontracts, Contractor shall (1) place qualified small and minority businesses and women’s business enterprises on its solicitation lists; (2) assure that small and minority businesses and women’s business enterprises are solicited whenever they are potential sources; (3) divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women’s business enterprises; (4) establish delivery schedules, where the requirement permits, which encourage participation by small and minority businesses and women’s business enterprises; (5) use the services and assistance, as appropriate, of the Small Business Administration, the Minority Business Development Agency of the Department of Commerce, and the North Carolina Office for Historically Underutilized Businesses.
- B. For the purposes of Section XII.A., an entity shall qualify (1) as a “minority business” or “women’s business enterprise” if it is currently certified as a North Carolina “historically underutilized business” under Chapter 143, Section 128.4(a) of the N.C. General Statutes (hereinafter G.S.), and (2) as a “small business” if it is independently owned and operated and is qualified under the Small Business Administration criteria and size standards at 13 C.F.R. Part 21.

Access to Records

- A. Contractor agrees to provide Unit, the Department of the Treasury, the Treasury Office of Inspector General, the Government Accountability Office, and the Comptroller General of the United States, or any authorized representatives of these entities, access to any records (electronic and otherwise) of Contractor which are directly pertinent to this Contract to conduct audits or any other investigations. Contractor agrees to permit any of the foregoing parties to reproduce such records by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
- B. Contractor agrees to retain all records covered by this Section XIII through December 31, 2031, or such longer period as is necessary for the resolution of any litigation, claim, negotiation, audit, or other inquiry involving the Contract.

Conflicts of Interest; Gifts and Favors

- A. Contractor understands that (1) Unit will use Fiscal Recovery Funds to pay for the cost of this Contract and (2) the expenditure of Fiscal Recovery Funds is governed by the [*Conflict of Interest Policy*] of the Unit, the Regulatory Requirements (including, without limitation, 2 C.F.R. § 200.318(c) (1)), and North Carolina law (including, without limitation, G.S. 14-234(a)(1) and -234.3(a)).
- B. Contractor certifies to Unit that as of the date hereof, to the best of its knowledge after reasonable inquiry, no employee, officer, or agent of Unit involved in the selection, award, or administration of this Contract (each a “Covered Individual”); no member of a Covered Individual’s immediate family; no partner of a Covered Individual; and no organization (including Contractor) which employs or is about to employ a Covered Individual has a financial or other interest in, or has received a tangible personal benefit from, Contractor. Should Contractor obtain knowledge of any such interest or any tangible personal benefit described in the preceding sentence after the date hereof, Contractor shall promptly disclose the same to Unit in writing.
- C. Contractor certifies to Unit that it has not provided, nor offered to provide, any gratuities, favors, or anything of value to an officer, employee, or agent of Unit. Should Contractor obtain knowledge of the provision, or offer of any provision, of any gratuity, favor, or anything of value to an officer, employee, or agent described in the preceding sentence after the date hereof, Contractor shall promptly disclose the same to Unit in writing.

Assurances of Compliance with Title VI of the Civil Rights Act of 1964

- A. Contractor and any Subcontractor, or the successor, transferee, or assignee of Contractor or any Subcontractor, shall comply with Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal financial assistance from excluding from a program or activity, denying benefits of, or otherwise discriminating against a person on the basis of race, color, or national origin (42 U.S.C. §§ 2000d *et seq.*), as implemented by the Department of the Treasury’s Title VI regulations, 31 C.F.R. Part 22, which are herein incorporated by reference and made a part of this Contract. Title VI also provides protection to persons with “Limited English Proficiency” in any program or activity receiving federal financial assistance, 42 U.S.C. §§ 2000d *et seq.*, as

implemented by Treasury's Title VI regulations, 31 C.F.R. Part 22, and herein incorporated by reference and made a part of this Contract.⁵

Other Non-Discrimination Statutes

- A. Contractor acknowledges that Unit is bound by and agrees, to the extent applicable to Contractor, to abide by the provisions contained in the federal statutes enumerated below and any other federal statutes and regulations that may be applicable to the expenditure of Fiscal Recovery Funds:
 - 1. The Fair Housing Act, Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§ 3601 *et seq.*), which prohibits discrimination in housing on the basis of race, color, religion, national origin, sex, familial status, or disability;
 - 2. Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794), which prohibits discrimination on the basis of disability under any program or activity receiving federal financial assistance;
 - 3. The Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101 *et seq.*), and Treasury's implementing regulations at 31 C.F.R. Part 23, which prohibit discrimination on the basis of age in programs or activities receiving federal financial assistance; and
 - 4. Title II of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. §§ 12101 *et seq.*), which prohibits discrimination on the basis of disability in programs, activities, and services provided or made available by state and local governments or instrumentalities or agencies thereto.

Miscellaneous

- A. *Increasing Seat Belt Use in the United States*. Pursuant to Executive Order 13043, 62 Fed. Reg. 19,216 (Apr. 18, 1997), Unit encourages Contractor to adopt and enforce on-the-job seat belt policies and programs for its employees when operating company-owned, rented, or personally owned vehicles.
- B. *Reducing Text Messaging While Driving*. Pursuant to Executive Order 13513, 74 Fed. Reg. 51,225 (Oct. 6, 2009), Unit encourages Contractor to adopt and enforce policies that ban text messaging while driving.

Conflicts and Interpretation

- A. To the extent that any portion of this Addendum conflicts with any term or condition of this Contract expressed outside of this Addendum, the terms of this Addendum shall govern.

CONTRACTOR:

By: _____

Name: _____

Title: _____

UNIT:

By: _____

Name: _____

Title: _____

[Signature Page to Coronavirus State and Local Fiscal Recovery Funds Addendum]

ATTACHMENT 1
TO
CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS ADDENDUM
APPENDIX A, 31 C.F.R. PART 21 – CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of the undersigned’s knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, or the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit [Standard Form-LLL, “Disclosure Form to Report Lobbying,”](#) in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.
4. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31 of the U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies and affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chapter 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor’s Authorized Official

Name and Title of Contractor’s Authorized Official

Date

Title VI of the Civil Rights Act of 1964
Nondiscrimination Provisions, Appendices A & E.

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1) Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation (USDOT), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(2) Nondiscrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin, sex, age, creed (religion), low-income, limited English proficiency, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(3) Solicitations for Subcontractors, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(4) Information and Reports: The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or

the USDOT to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the USDOT, as appropriate, and will set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the USDOT may determine to be appropriate, including, but not limited to:

- (a) withholding payments to the contractor under the contract until the contractor complies; and/or
- (b) cancelling, terminating, or suspending a contract, in whole or in part.

(6) Incorporation of Provisions: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the USDOT may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

- I. During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

Pertinent Nondiscrimination Authorities

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Nondiscrimination against minority

populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq);
- Federal transit laws, specifically 49 U.S.C. § 5332 (prohibiting discrimination based on race, color, religion, national origin, sex (including gender identity), disability, age, employment, or business opportunity).

WORK EXPERIENCE AND PROFESSIONAL QUALIFICATIONS

FORMS

Item 1. Documentation of at least three (3) successfully completed projects of similar scope performed by prime contractor or intended subcontractor preferably within the last five (5) years.

Contractor Name:	
Subcontractor Name(if applicable):	
Active Shoring and Sheeting Project 1	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project. (Approx. project length, square footage of shoring, avg. depth of shoring, urban/rural location)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of ACTIVE SHORING/SHEETING:
Describe the condition of the surrounding area during ACTIVE SHORING/SHEETING. Was there any observed/measured settlement? If dewatering was required, what method was used?	
List types of equipment used.	

Contractor Name:	
Subcontractor Name(if applicable):	
Active Shoring and Sheeting Project 2	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project. (Approx. project length, square footage of shoring, avg. depth of shoring, urban/rural location)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of ACTIVE SHORING/SHEETING:
Describe the condition of the surrounding area during ACTIVE SHORING/SHEETING. Was there any observed/measured settlement? If dewatering was required, what method was used?	
List types of equipment used.	

Contractor Name:	
Subcontractor Name(if applicable):	
Active Shoring and Sheeting Project 3	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project. (Approx. project length, square footage of shoring, avg. depth of shoring, urban/rural location)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of ACTIVE SHORING/SHEETING:
Describe the condition of the surrounding area during ACTIVE SHORING/SHEETING. Was there any observed/measured settlement? If dewatering was required, what method was used?	
List types of equipment used.	

Contractor Name:	
Subcontractor Name(if applicable):	
RCBC and/or 72" Pipe and Greater Project 1	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project. (Approx. length/depth of culvert installed; installed above/below water table)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of RCBC/ pipe installed:
Describe the condition of the surrounding area after RCBC/PIPE INSTALLED. Was there any observed/measured settlement? Were inverts installed to provide positive drainage?	
List types of equipment used.	

Contractor Name:	
Subcontractor Name(if applicable):	
RCBC and/or 72" Pipe and Greater Project 2	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project. (Approx. length/depth of culvert installed; installed above/below water table)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of RCBC/ pipe installed:
Describe the condition of the surrounding area after RCBC/PIPE INSTALLED. Was there any observed/measured settlement? Were inverts installed to provide positive drainage?	
List types of equipment used.	

Contractor Name:	
Subcontractor Name(if applicable):	
RCBC and/or 72" Pipe and Greater Project 3	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project. (Approx. length/depth of culvert installed; installed above/below water table)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of RCBC/ pipe installed:
Describe the condition of the surrounding area after RCBC/PIPE INSTALLED. Was there any observed/measured settlement? Were inverts installed to provide positive drainage?	
List types of equipment used.	

Contractor Name:	
Subcontractor Name(if applicable):	
Permit-Required Confined Spaces 1	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project (include work completed in the confined space, etc.)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of work within confined space:
Describe the condition of the confined space and approach to complete the work.	
List types of equipment used.	

Contractor Name:	
Subcontractor Name(if applicable):	
Permit-Required Confined Spaces 2	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project (include work completed in the confined space, etc.)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of work within confined space:
Describe the condition of the confined space and approach to complete the work.	
List types of equipment used.	

Contractor Name:	
Subcontractor Name(if applicable):	
Permit-Required Confined Spaces 3	
Performed by Contractor or Subcontractor (circle one)	
Name of Project:	
Owners of Project:	
Owners' Point of Contact	Alternate Owners' Point of Contact
Name:	Name:
Email:	Email:
Phone:	Phone:
Address:	Address:
Project Location:	
Company's role in this project (prime, joint venture, subcontractor, supplier). State general scope of project and relevance to this project (include work completed in the confined space, etc.)	
Original Contract Duration:	Final Contract Duration:
If final duration is greater than original duration, please explain:	
Project Completion Date:	Total Cost of work within confined space:
Describe the condition of the confined space and approach to complete the work.	
List types of equipment used.	

Item 2. The name of the foreman or supervisor (that will be expected to remain on site at all times per the terms of the Contract), including a description of his or her relevant prior work experience on similar projects.

ACTIVE SHORING AND SHEETING

Name of Foreman or Supervisor:
Prior work experience in active shoring and sheeting:

Name of Foreman or Supervisor:
Prior work experience in active shoring and sheeting:

RCBC AND/OR 72" PIPE AND GREATER

Name of Foreman or Supervisor:
Prior work experience on RCBC and/or 72" pipe and greater projects:

Name of Foreman or Supervisor:
Prior work experience on RCBC and/or 72" pipe and greater projects:

PERMIT-REQUIRED CONFINED SPACES

Name of Foreman or Supervisor:

Prior work experience in permit-required confined spaces:

Name of Foreman or Supervisor:

Prior work experience in permit-required confined spaces:

Item 3. The names and supporting materials showing the experience of any subcontractor anticipated to be used on this project.

ACTIVE SHORING AND SHEETING
Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

RCBC AND/OR 72" PIPE AND GREATER
Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:
Type of work to be completed:
Prior Work Experience:
Percentage of subcontractor's responsibilities of overall project:

PERMIT-REQUIRED CONFINED SPACES

Name of Subcontractor:

Type of work to be completed:

Prior Work Experience:

Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:

Type of work to be completed:

Prior Work Experience:

Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:

Type of work to be completed:

Prior Work Experience:

Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:

Type of work to be completed:

Prior Work Experience:

Percentage of subcontractor's responsibilities of overall project:

Name of Subcontractor:

Type of work to be completed:

Prior Work Experience:

Percentage of subcontractor's responsibilities of overall project:

Item 4. Provide a list of the type and amount of heavy and other commercial equipment that will be used during the construction process.

ACTIVE SHORING AND SHEETING

Type and Amount of Equipment to be Used:

--

RCBC AND/OR 72" PIPE AND GREATER

Type and Amount of Equipment to be Used:

--

PERMIT-REQUIRED CONFINED SPACES

Type and Amount of Equipment to be Used:

--

Item 5. The following Permit Required Confined Space information needs to be submitted to provide adequate work experience and project qualification.

Identify if the Contractor or Subcontractor has had an OSHA inspection in the most recent 3 years, if so were they cited and what for.

Identify who prepares and completes safety training for the contractor and subcontractor.

Additionally, the following documents need to be submitted.

1. Copy of the contractor and subcontractors Permit Required Confined Space Program including historical program reviews for the most recent 3 year period.
2. Copy of the contractor and subcontractors training records for the most recent 3 year period.
3. Copy of the contractor and subcontractors confined space permit forms.
4. Copy of the contractor and subcontractors training agenda and lesson plan for permit required confined space (confirming entry and attendant procedures, monitoring equipment calibration, use and maintenance, permitting and emergency response).
5. Provide a copy of the contractor and subcontractors procedure for permit required confined space emergency rescue.
6. Provide a specification sheet describing the type of equipment and monitoring devices used in confined spaces including calibration documentation.
7. Copy of historical contractor and subcontractor OSHA 300A Summary of Work-Related Injuries and Illnesses Report, including accident rates for the most recent 3 year period.

DOCUMENT 00 41 10
IRAN DIVESTMENT ACT

(In Accordance with N.C.G.S. 143C-6A-1 to 6A-9 effective February 26, 2016)

The vendor certification requirement under the Iran Divestment Act was eliminated, effective October 1, 2017!

Governor Cooper signed legislation into law on Thursday, July 27th, 2017 repealing the statute requiring that every State contract, and the contracts with any of its sub-units or with local government entities, include a contractor certification that the contractor is not on the list of entities doing business with Iran that is maintained by the Office of the State Treasurer. **The prohibition itself, however, remains in effect.**

In the future, North Carolina Dept. of Administration, Division of Purchase & Contract will post new solicitation templates with the certification requirement removed.

Note that the prohibition against contracting with vendors on the Treasurer's list remains in effect, even if a certification of that fact will no longer be needed. Each purchaser should download a copy of the list from the Treasurer's web site and check it before making any award recommendation, to make sure your selected vendor is not on the list, which would make your contract void. The Treasurer's list is updated every three months.

The list of prohibited vendors can be downloaded from:

<https://www.nctreasurer.com/inside-the-department/OpenGovernment/Pages/Iran-Divestment-Act-Resources.aspx>.

Remember to download both the *Final Divestment List* and the *Parent and Subsidiary List* from this page. Most of the companies on these lists are oil and petrochemical companies located in China or India.

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INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office*—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.05 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee

that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.
- C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.
 - 1. Electronic Documents that are available in native file format include:
 - a. **AutoCad Civil 3D design for survey layout purposes.**
 - 2. Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.
 - 3. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.
 - 4. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within **45** days of Owner's request, Bidder must submit the following information:
 - A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.
 - E. Other required information regarding qualifications.

ARTICLE 4—PRE-BID CONFERENCE

- 4.01 A mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are required to submit a Bid.
- 4.02 Information presented at the pre-bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - d. Technical Data contained in such reports and drawings.
2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

4. *Geotechnical Baseline Report/Geotechnical Data Report*: The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR).
 - a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations (“Baseline Conditions”). The GBR is a Contract Document.
 - b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.
 - c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.
 - d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.

5.03 *Other Site-related Documents*

- A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:

1. **SUE Level A testing results.**

Owner will make copies of these other Site-related documents available to any Bidder on request.

5.04 *Site Visit and Testing by Bidders*

- A. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.
- B. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- C. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner’s authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

5.05 *Owner’s Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder’s examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - A. **Marc Horstman, PE, PH, D. WRE**
WK Dickson & Co., Inc.
mhorstman@wkdickson.com
919-256-5642
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five (5) percent of Bidder’s maximum Bid price (determined by adding the base bid and all alternates) and

in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.

- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective

Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder’s name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder’s authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.

- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted

prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *Evaluation of Bids*
- A. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for

those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Owner is exempt from **North Carolina** state sales and use taxes on materials and equipment to be incorporated in the Work. (Exemption No. **[number]**). Said taxes must not be included in the Bid. Refer to Paragraph SC-7.10 of the Supplementary Conditions for additional information.

BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: Attn: Kevin Mulligan, City of Greenville, 1500 Beatty Street, Greenville, NC 27834
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - F. Required Bidder Qualification Statement with supporting data; and

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 *Unit Price Bids*

Bidder will perform the following Work at the indicated unit prices:

City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number: 20220983.00.RA

Item No.	Spec. No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1	800	Mobilization	LS	1	\$	\$
2	801	Construction Surveying	LS	1	\$	\$
3	SP-18	Construction As-Builts	LS	1	\$	\$
4	SP-03	Erosion and Sediment Control	LS	1	\$	\$
5	226	Grading	LS	1	\$	\$
6	226	Undercut Excavation	CY	680		
7	SP-22	Removal and Disposal of Existing Stormwater Pipe	LF	230	\$	\$
8	SP-22	Removal and Disposal of Existing Stormwater Structures	EA	2	\$	\$
9	SP-22	Removal and Disposal of Existing Asphalt Pavement	SY	5	\$	\$
10	SP-22	Removal and Disposal of Existing Water Main	LF	60	\$	\$
11	SP-22	Removal and Disposal of Existing Gravity Sewer	LF	30	\$	\$
12	SP-22	Removal and Disposal of Existing Concrete Curb and Gutter	LF	250	\$	\$
13	265	Select Granular Material	CY	4620	\$	\$
14	310	18" R.C. Pipe Culverts, Class III	LF	200	\$	\$
15	310	24" R.C. Pipe Culverts, Class III	LF	35	\$	\$
16	310	42" R.C. Pipe Culverts, Class III	LF	10	\$	\$
17	310	78" R.C. Pipe Culverts, Class III	LF	75	\$	\$
18	SP-54	8' X 8' Precast R.C. Box Culverts	LF	1300	\$	\$
19	SP-29	# 57 Stone, Undercut Bedding	CY	680	\$	\$
20	SP-29	# 57 Stone, Miscellaneous	CY	50	\$	\$
21	520	Aggregate Base Course	TON	1560	\$	\$
22	607	Milling Asphalt Pavement, 1.5" to 3"	SY	1750	\$	\$
23	610	Asphalt Conc Surface Course, Type S9.5C	TON	865	\$	\$
24	620	Asphalt Binder for Plant Mix	TON	50	\$	\$
25	710	4" Portland Cement Concrete Pavement, Miscellaneous	SY	140	\$	\$
26	840	Pipe Plugs	CY	3	\$	\$
27	SP-23	Flowable Fill	CY	100	\$	\$
28	SP-52	Standard Precast Catch Basin, COG Std 610.02	EA	9	\$	\$
29	SP-52	Standard Precast Manhole, COG Std 612.03	EA	3	\$	\$
30	SP-52	Precast Junction Box with Manhole, COG Std 613.01	EA	4	\$	\$

City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number: 20220983.00.RA

31	SP-52	Traffic Bearing Grated Drop Inlet, NCDOT Std 840.35	EA	5	\$	\$
32	SP-52	Precast 6' Manhole (with Manhole), NCDOT Std 840.52	EA	1	\$	\$
33	SP-53	Custom Junction Box (Structure_01)	EA	1	\$	\$
34	SP-53	Custom Junction Box (Structure_02)	EA	1	\$	\$
35	846	2'-0" Concrete Curb and Gutter	LF	700	\$	\$
36	848	4" Concrete Sidewalk	SY	15	\$	\$
37	848	Concrete Curb Ramps, COG Std 413.02	EA	1	\$	\$
38	SP-30	Traffic Control	LS	1	\$	\$
39	SP-36	Permanent Fertilizer, Seeding, and Mulching	SY	55	\$	\$
40	1664	Sodding	SY	920	\$	\$
41	SP-44	Safety Fence	LF	730	\$	\$
42	SP-32	Temporary 6' Tall Chain Link Barrier Fence	LF	730	\$	\$
43	SP-45	Concrete Washout Structure	EA	1	\$	\$
44	SP-48	Topsoil	CY	135	\$	\$
45	SP-33	Utility Coordination and Dry Utility Relocation Costs	LS	1	\$	\$
46	SP-21	Oil Water Separators	EA	1	\$	\$
47	SP-55	Remove and Reset Entrance Gate	EA	1	\$	\$
48	SP-56	Temporary Stormwater 84" CMP Tie-In (Station 11+75)	LS	1	\$	\$
49	SP-57	Temporary Stormwater 30" RCP Tie-In (Station 13+00)	LS	1	\$	\$
50	SPU-01	6-inch Diameter Restrained Joint Ductile Iron Water Services	LF	110	\$	\$
51	SPU-02	Ductile Iron Fittings (Includes Couplings)	LBS	820	\$	\$
52	SPU-03	4-inch Diameter Ductile Iron Gravity Sewer	LF	45	\$	\$
53	SPU-03	6-inch Diameter Ductile Iron Gravity Sewer	LF	75	\$	\$
54	SPU-03	10-inch Diameter Ductile Iron Gravity Sewer	LF	20	\$	\$
55	SPU-04	10-inch X 0.188-inch Steel Encasement w/ 4-inch Restraint joint Ductile Iron	LF	24	\$	\$
56	SPU-04	12-inch X 0.188-inch Steel Encasement w/ 6-inch Restraint joint Ductile Iron	LF	12	\$	\$
57	SPU-04	20-inch X 0.281-inch Steel Encasement w/ 10-inch Restraint joint Ductile Iron	LF	13	\$	\$
58	SPU-05	Concrete Encasement	LF	10	\$	\$
59	SPU-06	Connection of Proposed 4-inch DIP Gravity Sewer to Existing w/ Fernco Coupling	EA	4	\$	\$
60	SPU-06	Connection of Proposed 6-inch DIP Gravity Sewer to Existing w/ Fernco Coupling	EA	2	\$	\$

61	SPU-06	Connection of Proposed 10-inch DIP Gravity Sewer to Existing w/ Fernco Coupling	EA	2	\$	\$
62	SPU-07	By-Pass Sewer Pumping	LS	1	\$	\$
Total of All Unit Price Base Bid Items						\$

A. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor’s overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

- A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

- A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

Bidder's Contractor License No.: (if applicable) _____

DEBARMENT CERTIFICATION OF BIDDERS
EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

CORPORATION

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Full name of Corporation

Address as Prequalified

Attest _____
Secretary/Assistant Secretary
Select appropriate title

By _____
President/Vice President/Assistant Vice President
Select appropriate title

Print or type Signer's name

Print or type Signer's name

CORPORATE SEAL

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

_____ day of _____ 20__.

NOTARY SEAL

Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

PARTNERSHIP

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

_____ Full Name of Partnership

_____ Address as Prequalified

_____ By _____
Signature of Witness Signature of Partner

_____ Print or type Signer's name

_____ Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

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

NOTARY SEAL

_____ Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION
LIMITED LIABILITY COMPANY

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Full Name of Firm

Address as Prequalified

Signature of Witness

Signature of Member/Manager/Authorized Agent
Select appropriate title

Print or type Signer's name

Print or type Signer's Name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____ 20__.

Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Name of Contractor

_____ Individual name

Trading and doing business as

_____ Full name of Firm

_____ Address as Prequalified

_____ Signature of Witness

_____ Signature of Contractor, Individually

_____ Print or type Signer's name

_____ Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____ 20__.

_____ Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Name of Contractor _____
Print or type Individual name

Address as Prequalified

Signature of Contractor, Individually

Print or type Signer's Name

Signature of Witness

Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____ 20__.

Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

DEBARMENT CERTIFICATION

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Municipality if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation filed with the Municipality, or has become erroneous because of changed circumstances.
2. The terms *covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Municipality project representative.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in Municipal contracts, unless authorized by the Municipality.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Municipality, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Municipality may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

Check here if an explanation is attached to this certification.

BID BOND (PENAL SUM FORM)

Bidder Name: [Full formal name of Bidder] Address <i>(principal place of business)</i> : [Address of Bidder's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner City of Greenville Name: Kevin Mulligan Address <i>(principal place of business)</i> : 1500 Beatty Street Greenville, NC 27834	Bid Project <i>(name and location)</i> : City of Greenville Public Works Stormwater Pipe Improvements Phase 1 Bid Due Date: [Enter date bid is due]
Bond Penal Sum: [Amount] Date of Bond: [Date]	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder _____ <i>(Full formal name of Bidder)</i>	Surety _____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

BID BOND (DAMAGES FORM)

<p>Bidder Name: [Full formal name of Bidder] Address <i>(principal place of business)</i>: [Address of Bidder's principal place of business]</p>	<p>Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i>: [Address of Surety's principal place of business]</p>
<p>Owner City of Greenville Name: Kevin Mulligan Address <i>(principal place of business)</i>: 1500 Beatty Street Greenville, NC 27834</p>	<p>Bid Project <i>(name and location)</i>: City of Greenville Public Works Stormwater Pipe Improvements Phase 1 Bid Due Date: [Enter date bid is due]</p>
<p>Bond Bond Amount: [Amount] Date of Bond: [Date]</p>	
<p>Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i></p>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid, as determined by Owner, for the work required by the Contract Documents, provided that:
 - 1.1. If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the bond amount set forth on the face of this Bond, and
 - 1.2. In no event will Bidder's and Surety's obligation hereunder exceed the bond amount set forth on the face of this Bond.
 - 1.3. Recovery under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions will not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond must be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

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10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

ARTICLE 1—GENERAL INFORMATION

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business’s organizational structure:

Form of Business:	<input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Partnership <input type="checkbox"/> Corporation		
<input type="checkbox"/> Limited Liability Company <input type="checkbox"/> Joint Venture comprised of the following companies:			
	1.		
	2.		
	3.		
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Pending			

1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

1.04 Provide information regarding the Business’s officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts: <input type="checkbox"/> Yes <input type="checkbox"/> No		Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts: <input type="checkbox"/> Yes <input type="checkbox"/> No		Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts: <input type="checkbox"/> Yes <input type="checkbox"/> No		Limit of Authority:	\$
Name:		Title:	

ARTICLE 2—LICENSING

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS

3.01 Provide information regarding Business’s Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
<input type="checkbox"/> Disadvantaged Business Enterprise		
<input type="checkbox"/> Minority Business Enterprise		
<input type="checkbox"/> Woman-Owned Business Enterprise		
<input type="checkbox"/> Small Business Enterprise		
<input type="checkbox"/> Disabled Business Enterprise		
<input type="checkbox"/> Veteran-Owned Business Enterprise		
<input type="checkbox"/> Service-Disabled Veteran-Owned Business		
<input type="checkbox"/> HUBZone Business (Historically Underutilized) Business		
<input type="checkbox"/> Other		
<input type="checkbox"/> None		

ARTICLE 4—SAFETY

4.01 Provide information regarding Business’s safety organization and safety performance.

Name of Business’s Safety Officer:		
Safety Certifications		
Certification Name	Issuing Agency	Expiration

ARTICLE 5—FINANCIAL

ARTICLE 6—SURETY INFORMATION

6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:	
Surety is a corporation organized and existing under the laws of the state of:	
Is surety authorized to provide surety bonds in the Project location? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Is surety listed in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Mailing Address (principal place of business):	
Physical Address (principal place of business):	
Phone (main):	Phone (claims):

ARTICLE 7—INSURANCE

7.01 Provide information regarding Business’s insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):	
Insurance Provider	Type of Policy (Coverage Provided)

Are providers licensed or authorized to issue policies in the Project location?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Does provider have an A.M. Best Rating of A-VII or better?		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

ARTICLE 8—CONSTRUCTION EXPERIENCE

8.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

8.02 Provide information regarding the Business’s previous contracting experience.

Years of experience with projects like the proposed project:			
As a general contractor:		As a joint venturer:	
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:			
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Been barred from contracting by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Been released from a bid in the past 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Defaulted on a project or failed to complete any contract awarded to it? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Refused to construct or refused to provide materials defined in the contract documents or in a change order? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Been a party to any currently pending litigation or arbitration? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Provide full details in a separate attachment if the response to any of these questions is Yes.			

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WKD Project Number: 20220983.00.RA

8.03 List all projects currently under contract in Schedule A and provide indicated information.

ARTICLE 9—REQUIRED ATTACHMENTS

9.01 Provide the following information with the Statement of Qualifications:

- A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
- B. Diverse Business Certifications if required by Paragraph 3.01.
- C. Certification of Business's safety performance if required by Paragraph 4.02.
- D. Financial statements as required by Paragraph 5.01.
- E. Attachments providing additional information as required by Paragraph 8.02.
- F. Schedule A (Current Projects) as required by Paragraph 8.03.
- G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.
- H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.
- I. Additional items as pertinent.

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This Statement of Qualifications is offered by:

Business: _____
(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(date signed)

(If Business is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address: _____

Phone: _____

Email: _____

Schedule A—Current Projects

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email

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Owner					
Designer					
Construction Manager					

NOTICE OF AWARD

Date of Issuance:

Owner: City of Greenville

Owner's Project No.:

Engineer: W.K. Dickson & Co., Inc.

Engineer's Project No.: 20220983.00.RA

Project: Public Works Stormwater Pipe
Improvements Phase 1

Contract Name:

Bidder:

Bidder's Address:

You are notified that Owner has accepted your Bid dated **[date]** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Public Works Stormwater Pipe Improvements Phase 1 project includes re-routing, replacing and upsizing the existing storm drainage system and replacing and re-routing existing utilities in order to install the new storm drainage system from Beatty Street to approximately 1,300' feet upstream of Beatty Street within the general area of the City of Greenville Public Works Yard. Utility Coordination, traffic Control, and erosion control are also included within the scope of this project.

The Contract Price of the awarded Contract is **\$(Contract Price)**. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

[Number of copies sent] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner 3 counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **[Describe other conditions that require Successful Bidder's compliance]**

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

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

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Owner: **City of Greenville**

By *(signature)*: _____

Name *(printed)*: _____

Title: _____

Copy: W.K. Dickson & Co., Inc., Engineer

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between City of Greenville (“Owner”) and [name of contracting entity] (“Contractor”).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Public Works Stormwater Pipe Improvements Phase 1 project includes re-routing, replacing and upsizing the existing storm drainage system and replacing and re-routing existing utilities in order to install the new storm drainage system from Beatty Street to approximately 1,300’ feet upstream of Beatty Street within the general area of the City of Greenville Public Works Yard. Utility Coordination, traffic Control, and erosion control are also included within the scope of this project.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Public Works Stormwater Pipe Improvements Phase 1**

ARTICLE 3—ENGINEER

3.01 The Owner has retained W.K. Dickson & Co. Inc. (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by W.K. Dickson & Co. Inc.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

A. The Work will be substantially complete within **426** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **30** days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. *Substantial Completion*: Contractor shall pay Owner **\$1000** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
 2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$1000** for each day that expires after such time until the Work is completed and ready for final payment.
 3. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner’s sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Item No.	Spec. No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1	800	Mobilization	LS	1	\$	\$
2	801	Construction Surveying	LS	1	\$	\$
3	SP-18	Construction As-Builts	LS	1	\$	\$
4	SP-03	Erosion and Sediment Control	LS	1	\$	\$
5	226	Grading	LS	1	\$	\$
6	226	Undercut Excavation	CY	680		
7	SP-22	Removal and Disposal of Existing Stormwater Pipe	LF	230	\$	\$
8	SP-22	Removal and Disposal of Existing Stormwater Structures	EA	2	\$	\$

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9	SP-22	Removal and Disposal of Existing Asphalt Pavement	SY	5	\$	\$
10	SP-22	Removal and Disposal of Existing Water Main	LF	60	\$	\$
11	SP-22	Removal and Disposal of Existing Gravity Sewer	LF	30	\$	\$
12	SP-22	Removal and Disposal of Existing Concrete Curb and Gutter	LF	250	\$	\$
13	265	Select Granular Material	CY	4620	\$	\$
14	310	18" R.C. Pipe Culverts, Class III	LF	200	\$	\$
15	310	24" R.C. Pipe Culverts, Class III	LF	35	\$	\$
16	310	42" R.C. Pipe Culverts, Class III	LF	10	\$	\$
17	310	78" R.C. Pipe Culverts, Class III	LF	75	\$	\$
18	SP-54	8' X 8' Precast R.C. Box Culverts	LF	1300	\$	\$
19	SP-29	# 57 Stone, Undercut Bedding	CY	680	\$	\$
20	SP-29	# 57 Stone, Miscellaneous	CY	50	\$	\$
21	520	Aggregate Base Course	TON	1560	\$	\$
22	607	Milling Asphalt Pavement, 1.5" to 3"	SY	1750	\$	\$
23	610	Asphalt Conc Surface Course, Type S9.5C	TON	865	\$	\$
24	620	Asphalt Binder for Plant Mix	TON	50	\$	\$
25	710	4" Portland Cement Concrete Pavement, Miscellaneous	SY	140	\$	\$
26	840	Pipe Plugs	CY	3	\$	\$
27	SP-23	Flowable Fill	CY	100	\$	\$
28	SP-52	Standard Precast Catch Basin, COG Std 610.02	EA	9	\$	\$
29	SP-52	Standard Precast Manhole, COG Std 612.03	EA	3	\$	\$
30	SP-52	Precast Junction Box with Manhole, COG Std 613.01	EA	4	\$	\$
31	SP-52	Traffic Bearing Grated Drop Inlet, NCDOT Std 840.35	EA	5	\$	\$
32	SP-52	Precast 6' Manhole (with Manhole), NCDOT Std 840.52	EA	1	\$	\$
33	SP-53	Custom Junction Box (Structure_01)	EA	1	\$	\$
34	SP-53	Custom Junction Box (Structure_02)	EA	1	\$	\$
35	846	2'-0" Concrete Curb and Gutter	LF	700	\$	\$
36	848	4" Concrete Sidewalk	SY	15	\$	\$
37	848	Concrete Curb Ramps, COG Std 413.02	EA	1	\$	\$
38	SP-30	Traffic Control	LS	1	\$	\$
39	SP-36	Permanent Fertilizer, Seeding, and Mulching	SY	55	\$	\$
40	1664	Sodding	SY	920	\$	\$
41	SP-44	Safety Fence	LF	730	\$	\$
42	SP-32	Temporary 6' Tall Chain Link Barrier Fence	LF	730	\$	\$

43	SP-45	Concrete Washout Structure	EA	1	\$	\$
44	SP-48	Topsoil	CY	135	\$	\$
45	SP-33	Utility Coordination and Dry Utility Relocation Costs	LS	1	\$	\$
46	SP-21	Oil Water Separators	EA	1	\$	\$
47	SP-55	Remove and Reset Entrance Gate	EA	1	\$	\$
48	SP-56	Temporary Stormwater 84" CMP Tie-In (Station 11+75)	LS	1	\$	\$
49	SP-57	Temporary Stormwater 30" RCP Tie-In (Station 13+00)	LS	1	\$	\$
50	SPU-01	6-inch Diameter Restrained Joint Ductile Iron Water Services	LF	110	\$	\$
51	SPU-02	Ductile Iron Fittings (Includes Couplings)	LBS	820	\$	\$
52	SPU-03	4-inch Diameter Ductile Iron Gravity Sewer	LF	45	\$	\$
53	SPU-03	6-inch Diameter Ductile Iron Gravity Sewer	LF	75	\$	\$
54	SPU-03	10-inch Diameter Ductile Iron Gravity Sewer	LF	20	\$	\$
55	SPU-04	10-inch X 0.188-inch Steel Encasement w/ 4-inch Restraint joint Ductile Iron	LF	24	\$	\$
56	SPU-04	12-inch X 0.188-inch Steel Encasement w/ 6-inch Restraint joint Ductile Iron	LF	12	\$	\$
57	SPU-04	20-inch X 0.281-inch Steel Encasement w/ 10-inch Restraint joint Ductile Iron	LF	13	\$	\$
58	SPU-05	Concrete Encasement	LF	10	\$	\$
59	SPU-06	Connection of Proposed 4-inch DIP Gravity Sewer to Existing w/ Fernco Coupling	EA	4	\$	\$
60	SPU-06	Connection of Proposed 6-inch DIP Gravity Sewer to Existing w/ Fernco Coupling	EA	2	\$	\$
61	SPU-06	Connection of Proposed 10-inch DIP Gravity Sewer to Existing w/ Fernco Coupling	EA	2	\$	\$
62	SPU-07	By-Pass Sewer Pumping	LS	1	\$	\$
Total of All Unit Price Base Bid Items						\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

ARTICLE 6—C. PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the **25th** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. Specifications and Special Provisions as listed in the table of contents of the project manual (copy of list attached).
 6. Drawings (not attached but incorporated by reference) consisting of **62** sheets with each sheet bearing the following general title: **Public Works Stormwater Pipe Improvements Phase 1.**
 7. Addenda (numbers **[number]** to **[number]**, inclusive).
 8. Exhibits to this Agreement (enumerated as follows):
 - a. **ARPA Funding Contract (Coronavirus State and Local Fiscal Recovery Funds Addendum)**
 - b. **Title VI of the Civil Rights Act of 1964 Nondiscrimination Provisions, Appendices A & E**
 - c. **Work Experience and Professional Qualifications Forms**
 9. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.

- e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 - 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - 4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 - 5. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
 - 6. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 - 7. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
 - 8. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

9. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
10. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Owner:

City of Greenville

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

(typed or printed)

Title:

(typed or printed)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

Contractor:

(typed or printed name of organization)

By:

(individual's signature)

Date:

(date signed)

Name:

(typed or printed)

Title:

(typed or printed)

(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

(individual's signature)

Title:

(typed or printed)

Address for giving notices:

Designated Representative:

Name:

(typed or printed)

Title:

(typed or printed)

Address:

Phone:

Email:

License No.:

(where applicable)

State:

City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number: 20220983.00.RA

INCLUDE this section only if contract is for a North Carolina public sector client

This instrument has been preaudited in the manner required by the “Local Government Budget and Fiscal Control Act”.

By: _____ Date: _____
Finance Officer

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NOTICE TO PROCEED

Owner: City of Greenville Owner's Project No.: _____
Engineer: W.K. Dickson & Co., Inc. Engineer's Project No.: 20220983.00.RA
Contractor: _____ Contractor's Project No.: _____
Project: Public Works Stormwater Pipe Improvements Phase 1
Contract Name: _____
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is **426 calendar days** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **456 calendar days** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Owner: City of Greenville
By (signature): _____
Name (printed): Kevin Mulligan
Title: _____
Date Issued: _____

Copy: W.K. Dickson & Co., Inc., Engineer

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PERFORMANCE BOND

Contractor Name: [Full formal name of Contractor] Address <i>(principal place of business)</i> : [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: City of Greenville Mailing address <i>(principal place of business)</i> : 1500 Beatty Street Greenville, NC 27834	Contract Description <i>(name and location)</i> : City of Greenville Public Works Stormwater Pipe Improvements Phase 1 Contract Price: [Amount from Contract] Effective Date of Contract: [Date from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

- 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 - 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
14. Definitions
- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
- 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
- 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
- 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

WARRANTY BOND

Contractor Name: [Full formal name of Contractor] Address (<i>principal place of business</i>): [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address (<i>principal place of business</i>): [Insert address of Surety's principal place of business]
Owner Name: City of Greenville Address (<i>principal place of business</i>): 1500 Beatty Street Greenville, NC 27834	Construction Contract Description (<i>name and location</i>): City of Greenville Public Works Stormwater Pipe Improvements Phase 1 Contract Price: [Amount from Contract] Effective Date of Contract: [Date from Contract] Contract's Date of Substantial Completion: [Date from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 9	
Bond Period: Commencing 364 days after Substantial Completion of the Work under the Construction Contract, and continuing until [insert number of years, typically either two or three] years after such Substantial Completion.	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth herein, do each cause this Warranty Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
By: _____ <i>(Full formal name of Contractor)</i> <i>(Signature)</i>	By: _____ <i>(Full formal name of Surety) (corporate seal)</i> <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract's Correction Period Obligations. The Construction Contract is incorporated herein by reference.
2. If the Contractor performs the Correction Period Obligations, the Surety and the Contractor shall have no obligation under this Warranty Bond.
3. If Owner gives written notice to Contractor and Surety during the Bond Period of Contractor's obligation under the Correction Period Obligations, and Contractor does not fulfill such obligation, then Surety shall be responsible for fulfillment of such Correction Period Obligations. Surety shall either fulfill the Correction Period Obligations itself, through its agents or contractors, or, in the alternative, Surety may waive the right to fulfill the Correction Period Obligations itself, and reimburse the Owner for all resulting costs incurred by Owner in performing Contractor's Correction Period Obligations, including but not limited to correction, removal, replacement, and repair costs.
4. The Surety's liability is limited to the amount of this Warranty Bond. Renewal or continuation of the Warranty Bond will not modify such amount, unless expressly agreed to by Surety in writing.
5. The Surety shall have no liability under this Warranty Bond for obligations of the Contractor that are unrelated to the Construction Contract. No right of action will accrue on this Warranty Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
6. Any proceeding, legal or equitable, under this Warranty Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and must be instituted within two years after the Surety refuses or fails to perform its obligations under this Warranty Bond.
7. Written notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown in this Warranty Bond.
8. Definitions
 - 8.1. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page of this Warranty Bond, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 8.2. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
 - 8.3. *Correction Period Obligations*—The duties, responsibilities, commitments, and obligations of the Contractor with respect to correction or replacement of defective Work, as set forth in the Construction Contract's Correction Period clause, EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.08, as duly modified.
 - 8.4. *Substantial Completion*—As defined in the Construction Contract.
 - 8.5. *Work*—As defined in the Construction Contract.
9. Modifications to this Bond are as follows: **[Describe modification or enter "None"]**

DOCUMENT 00 61 16
CONTRACTOR'S AFFIDAVIT RELATED TO LIENS AND CLAIMS

STATE OF NORTH CAROLINA
COUNTY OF PITT

On this day, _____, being duly sworn, deposes and says that he is the _____ of _____ (Contractor) who entered into a contract, Public Works Stormwater Pipe Improvements Phase 1, dated _____, with City of Greenville (Owner) for furnishing materials and labor in the erection and construction of facilities defined in the Contract Documents, such erection and construction having been completed.

Further, that in accordance with the Contract Documents and applicable Statutes of the State of North Carolina the undersigned hereby declares that the claims of all subcontractors, materialmen, laborers, and all other persons and parties furnishing labor and materials with respect to the above mentioned Contract have been paid in full except as follows:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Affiant further states that, by execution of this affidavit, he agrees to indemnify and save harmless the Owner from any liability for payment of said deficiencies in the stated amounts or any part thereof.

Contractor

Subscribed and sworn to before me

this _____ day _____ of, 20____

Notary Public

My Commission Expires: _____

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PAYMENT BOND

Contractor Name: [Full formal name of Contractor] Address <i>(principal place of business)</i> : [Address of Contractor's principal place of business]	Surety Name: [Full formal name of Surety] Address <i>(principal place of business)</i> : [Address of Surety's principal place of business]
Owner Name: City of Greenville Mailing address <i>(principal place of business)</i> : 1500 Beatty Street Greenville, NC 27834	Contract Description <i>(name and location)</i> : City of Greenville Public Works Stormwater Pipe Improvements Phase 1 Contract Price: [Amount, from Contract] Effective Date of Contract: [Date, from Contract]
Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety

shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

- 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;
 - 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows: **[Describe modification or enter “None”]**

DOCUMENT 00 62 76
TAX STATEMENTS AND CERTIFICATIONS

NORTH CAROLINA
TAX STATEMENT AND CERTIFICATION

This is to certify that the foregoing or attached statements are a true and complete statement of all State and County Sales or Use Tax paid by the undersigned Contractor from _____, 20 ____, to _____, 20 ____, inclusive for the materials and equipment that were or will become a part of the construction of the

Public Works Stormwater Pipe Improvements Phase 1

(THE FOLLOWING PORTION TO BE FILLED OUT BY GENERAL CONTRACTOR ONLY)

It is further certified that

are all of the subcontractors that are, or were engaged by this Contractor in the performance of this contract and whose tax statements are also enclosed herewith.

CONTRACTOR OR SUBCONTRACTOR

Sworn and subscribed before me

This _____ day of _____, 20 __

NOTARY PUBLIC

My Commission Expires:

DOCUMENT 00 62 76
STATE AND COUNTY SALES/USE TAX STATEMENT

Contractor's (or Subcontractor's) Name: _____

Project: Public Works Stormwater Pipe Improvements Phase 1

Sheet No. _____ of _____

INVOICE	INVOICE DATES FROM _____ TO _____	VENDOR'S NAME	TYPE OF MATERIAL	TOTAL AMOUNT OF INVOICE	SALES/USE TAX		
					STATE	COUNTY*	COUNTY PAID
Subtotal This Page:							
Total All Invoices:							

*NOTE: Separate Form shall be used for each County.

DOCUMENT 00 62 79
MATERIAL INVENTORY STATEMENT

Project: Public Works Stormwater Pipe Improvements Phase 1

Date: _____

DESCRIPTION	UNIT	UNIT PRICE	ON HAND PREVIOUS ESTIMATE	DELIVERED THIS MONTH	GROSS	INCORPORATED IN WORK	ON HAND THIS ESTIMATE	STORED VALUE
							Total:	

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CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: City of Greenville
Engineer: W.K. Dickson & Co., Inc.
Contractor:
Project: Public Works Stormwater Pipe
Improvements Phase 1
Contract Name:

Owner's Project No.:
Engineer's Project No.: 20220983.00.RA
Contractor's Project No.:

This Preliminary Final Certificate of Substantial Completion applies to:

All Work The following specified portions of the Work:

Public Works Stormwater Pipe Improvements Phase 1 project includes re-routing, replacing and upsizing the existing storm drainage system and replacing and re-routing existing utilities in order to install the new storm drainage system from Beatty Street to approximately 1,300' feet upstream of Beatty Street within the general area of the City of Greenville Public Works Yard. Utility Coordination, traffic Control, and erosion control are also included within the scope of this project.

Date of Substantial Completion: **[Enter date, as determined by Engineer]**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: None As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: None As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number: 20220983.00.RA

Engineer

By (*signature*): _____

Name (*printed*): _____

Title: _____

NOTICE OF ACCEPTABILITY OF WORK

Owner: City of Greenville	Owner's Project No.:
Engineer: W.K. Dickson & Co., Inc.	Engineer's Project No.: 20220983.00.RA
Contractor:	Contractor's Project No.:
Project: Public Works Stormwater Pipe Improvements Phase 1	
Contract Name:	
Notice Date:	Effective Date of the Construction Contract:

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract's Contract Documents ("Contract Documents") and of the Agreement between Owner and Engineer for Professional Services dated **[date of professional services agreement]** ("Owner-Engineer Agreement"). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. This Notice reflects and is an expression of the Engineer's professional opinion.
3. This Notice has been prepared to the best of Engineer's knowledge, information, and belief as of the Notice Date.
4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

Engineer

By *(signature)*: _____
Name *(printed)*: Marc Horstman, PE, PH, D.WRE
Title: Project Manager

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City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number: 20220983.00.RA

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract

- Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions,

including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor’s plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the

Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.

43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
 - a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
 - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*: The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day*: The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*: The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

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

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

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

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in

resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

- a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

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

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

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

4.03 *Reference Points*

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

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption,

- and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. Abnormal weather conditions;
 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 4. Acts of war or terrorism.
- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

- A. *Limitation on Use of Site and Other Areas*
 - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b)

promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
 - 2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
 - 3. Technical Data contained in such reports and drawings.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
 3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
 4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
 2. is of such a nature as to require a change in the Drawings or Specifications;
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

- F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities*: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;
 3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review*: Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
 - c. Contractor gave the notice required in Paragraph 5.05.B.
 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
 2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely

- obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to

indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
- F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party’s full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party’s obligation to obtain and maintain such insurance.
- G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner’s option, may purchase and maintain Owner’s own liability insurance. Owner’s liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner’s liability policies for any of Contractor’s obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
- I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
- K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.
- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
1. include at least the specific coverages required;

2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds*: The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);
 4. not seek contribution from insurance maintained by the additional insured; and
 5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

- C. *Property Insurance for Substantially Complete Facilities:* Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.
 - 1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
 - 2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to

Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR’S RESPONSIBILITIES

7.01 Contractor’s Means and Methods of Construction

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor’s responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor’s expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor’s determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 Supervision and Superintendence

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 Labor; Working Hours

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.
- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor’s employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor’s own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner’s written consent, which will not be unreasonably withheld.

7.04 Services, Materials, and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *“Or Equals”*

- A. *Contractor’s Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or equal” item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an “or equal” item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
 - b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor’s Expense:* Contractor shall provide all data in support of any proposed “or equal” item at Contractor’s expense.
- C. *Engineer’s Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each “or-equal” request. Engineer may require Contractor to furnish additional data about the proposed “or-equal” item. Engineer will be the sole judge of acceptability. No “or-equal” item will be ordered, furnished, installed, or utilized until Engineer’s review is complete

and Engineer determines that the proposed item is an “or-equal,” which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer’s Determination:* Neither approval nor denial of an “or-equal” request will result in any change in Contract Price. The Engineer’s denial of an “or-equal” request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an “or-equal” item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

- A. *Contractor’s Request; Governing Criteria:* Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

- 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 Concerning Subcontractors and Suppliers

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

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

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

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

7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

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

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
 - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.
3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

- a. Contractor shall submit the number of copies required in the Specifications.

- b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

- a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.

- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
 - 1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 - 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 - 1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 - 2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
 - 1. Observations by Engineer;
 - 2. Recommendation by Engineer or payment by Owner of any progress or final payment;
 - 3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 - 4. Use or occupancy of the Work or any part thereof by Owner;
 - 5. Any review and approval of a Shop Drawing or Sample submittal;
 - 6. The issuance of a notice of acceptability by Engineer;
 - 7. The end of the correction period established in Paragraph 15.08;
 - 8. Any inspection, test, or approval by others; or
 - 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses,

damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.
- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;

2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay,

disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
 - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

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

9.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to

make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.
- E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
- B. If Owner has issued a Work Change Directive and:
1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract

Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 - 1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 - 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 - 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
 - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
 - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content*: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal*: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data*: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review*: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal*: Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

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

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 - 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the

locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
5. Other costs consisting of the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not

be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
 - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
 - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
2. The cost of purchasing, renting, or furnishing small tools and hand tools.
3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
6. Expenses incurred in preparing and advancing Claims.
7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal

business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
 - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

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

right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
 - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
 - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's

request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due

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

E. Reductions in Payment by Owner

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

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

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs,

losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due,

Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

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

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No suggested Supplementary Conditions in this Article.

ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor's Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner's Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

2.02 *Copies of Documents*

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor **2** printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and **one copy** in electronic portable document format (PDF).

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

- A. Owner shall furnish to Contractor **[number]** printed copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed

copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

2.06 *Electronic Transmittals*

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

B. *Electronic Documents Protocol*: The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol (“EDP” or “Protocol”) for exchange of electronic transmittals.

1. *Basic Requirements*

- a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.
- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party’s use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions (“System Infrastructure”) at its own cost and sufficient for complying with the EDP requirements. With the exception of

minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.

- 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is **10 MB**. Attachments larger than that may be exchanged using large file transfer functions or physical media.
 - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology (“IT”) for maintaining operations of its System Infrastructure during the Project, including coordination with the party’s individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.
 - c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.
 - d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
 - e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.

- f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
- g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the communication.
- h. The Owner will operate a Project information management system (also referred to in this EDP as “Project Website”) for use of Owner, Engineer and Contractor during the Project for exchange and storage of Project-related communications and information. Except as otherwise provided in this EDP or the General Conditions, use of the Project Website by the parties as described in this Paragraph will be mandatory for exchange of Project documents, communications, submittals, and other Project-related information. The following conditions and standards will govern use of the Project Website:
 - 1) **Project website will be used for the entire project duration;**

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

SC-3.01 Delete Paragraph 3.01.C in its entirety.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.05 *Delays in Contractor’s Progress*

SC-4.05 Amend Paragraph 4.05.C by adding the following subparagraphs:

- 5. *Weather-Related Delays*
 - a. If “abnormal weather conditions” as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.
 - b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
 - 1) Every workday on which one or more of the following conditions exist will be considered a “bad weather day”:
 - i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds **1.0 inch** of precipitation (as rain equivalent, based on the

snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.

- ii) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: **28** degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: **95** degrees Fahrenheit.

ARTICLE 5—ENGINEER’S STATUS DURING CONSTRUCTION

5.03 *Resident Project Representative*

SC-5.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
 - 1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor’s safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
 - 2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR’s own personal safety while at the Site.
 - 3. *Liaison*
 - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner’s liaison with Contractor when Contractor’s operations affect Owner’s on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for Contractor’s proper execution of the Work.
 - 4. *Review of Work; Defective Work*
 - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Observe whether any Work in place appears to be defective.
 - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
 - 5. *Inspections and Tests*

- a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
 - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
6. *Payment Requests:* Review Applications for Payment with Contractor.
7. *Completion*
- a. Participate in Engineer’s visits regarding Substantial Completion.
 - b. Assist in the preparation of a punch list of items to be completed or corrected.
 - c. Participate in Engineer’s visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
 - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including “or-equal” items).
 2. Exceed limitations of Engineer’s authority as set forth in the Contract Documents.
 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.
 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 7. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 6—CHANGES TO THE CONTRACT

No suggested Supplementary Conditions in this Article.

ARTICLE 7—CLAIMS

No suggested Supplementary Conditions in this Article.

ARTICLE 8—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

No suggested Supplementary Conditions in this Article.

ARTICLE 9—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD

9.03 Substantial Completion

SC-9.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

9.08 Correction Period

SC-9.08 Add the following new Paragraph 15.08.G:

- G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in SC-6.01.B.1; or if no such revision has been made in SC-6.01.B, then the correction period is hereby specified to be **1.0** years after Substantial Completion.

ARTICLE 10—SUSPENSION OF WORK AND TERMINATION

No suggested Supplementary Conditions in this Article.

ARTICLE 11—FINAL RESOLUTIONS OF DISPUTES

11.02 Arbitration

SC-11.02 Add the following new paragraph immediately after Paragraph 17.01.

11.02 Arbitration

- A. All matters subject to final resolution under this Article will be settled by arbitration administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules (subject to the conditions and limitations of this Paragraph SC-17.02). Any controversy or claim in the amount of \$100,000 or less will be settled in accordance with the American Arbitration Association's supplemental rules for Fixed Time and Cost Construction Arbitration. This agreement to arbitrate will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitration administrator, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the specific time required in Article 17, or if no specified time is applicable within a reasonable time after the matter in question has arisen, and in no event will any such demand be made after the date when institution of legal or equitable proceedings based on such matter in question would be barred by the applicable statute of limitations.
- C. The arbitrator(s) must be licensed engineers, contractors, attorneys, or construction managers. Hearings will take place pursuant to the standard procedures of the Construction

Arbitration Rules that contemplate in-person hearings. The arbitrators will have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute or the Contract. Any award in an arbitration initiated under this clause will be limited to monetary damages and include no injunction or direction to any party other than the direction to pay a monetary amount.

- D. The Arbitrators will have the authority to allocate the costs of the arbitration process among the parties, but will only have the authority to allocate attorneys' fees if a specific Law or Regulation or this Contract permits them to do so.
- E. The award of the arbitrators must be accompanied by a reasoned written opinion and a concise breakdown of the award. The written opinion will cite the Contract provisions deemed applicable and relied on in making the award.
- F. The parties agree that failure or refusal of a party to pay its required share of the deposits for arbitrator compensation or administrative charges will constitute a waiver by that party to present evidence or cross-examine witness. In such event, the other party shall be required to present evidence and legal argument as the arbitrator(s) may require for the making of an award. Such waiver will not allow for a default judgment against the non-paying party in the absence of evidence presented as provided for above.
- G. No arbitration arising out of or relating to the Contract will include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
 - 1. the inclusion of such other individual or entity will allow complete relief to be afforded among those who are already parties to the arbitration;
 - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration, and which will arise in such proceedings;
 - 3. such other individual or entity is subject to arbitration under a contract with either Owner or Contractor, or consents to being joined in the arbitration; and
 - 4. the consolidation or joinder is in compliance with the arbitration administrator's procedural rules.
- H. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Laws and Regulations relating to vacating or modifying an arbitral award.
- I. Except as may be required by Laws or Regulations, neither party nor an arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both parties, with the exception of any disclosure required by Laws and Regulations or the Contract. To the extent any disclosure is allowed pursuant to the exception, the disclosure must be strictly and narrowly limited to maintain confidentiality to the extent possible.

11.03 *Attorneys' Fees*

SC-11.03 Add the following new paragraph immediately after Paragraph 17.02. [Note: If there is no Paragraph 17.02, because neither arbitration nor any other dispute resolution process has been specified here in the Supplementary Conditions, then revise this to state "Add the following new Paragraph immediately after Paragraph 17.01" and revise the numbering accordingly].

11.03 *Attorneys' Fees*

- A. For any matter subject to final resolution under this Article, the prevailing party shall be entitled to an award of its attorneys' fees incurred in the final resolution proceedings, in an equitable amount to be determined in the discretion of the court, arbitrator, arbitration panel, or other arbiter of the matter subject to final resolution, taking into account the parties' initial demand or defense positions in comparison with the final result.

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EXHIBIT A—SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI's and responses to RFI's, and Contract forms.	OpCenter	PDF	(2)
a.3	Contactors Submittals (Shop Drawings, "or equal" requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner's and Engineer's responses to Contractor's Submittals, Shop Drawings, correspondence, and Applications for Payment.	OpCenter	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	OpCenter	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	OpCenter	DWG	
a.6	Correspondence, reports and Specifications to be submitted to Owner for future word processing use and modification.	OpCenter	DOC	
a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	OpCenter	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	OpCenter	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Conditions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader Version 2018 or later			
DWG	Autodesk® AutoCAD .dwg format Version 2018			
DOC	Microsoft® Word .docx format Version 2018			
EXC	Microsoft® Excel .xls or .xml format Version 2018			
DB	Microsoft® Access .mdb format Version 2018			

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SPECIAL PROVISIONS

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SPECIAL PROVISIONS

PROJECT SPECIAL PROVISIONS

GENERAL

**SP-01 CITY OF GREENVILLE/GREENVILLE UTILITIES COMMISSION MINORITY
AND WOMEN BUSINESS ENTERPRISE (MWBE) PROGRAM**

See Attached Document starting next page

**City of Greenville/Greenville Utilities Commission
Minority and Women Business Enterprise (MWBE) Program**

**City of Greenville
Construction Guidelines and Affidavits
\$100,000 and above**

These instructions shall be included with each bid solicitation.

City of Greenville/Greenville Utilities Commission Minority and Women Business Enterprise Program

\$100,000 and Construction Guidelines for MWBE Participants

Policy Statement

It is the policy of the City of Greenville and Greenville Utilities Commission to provide minorities and women equal opportunity for participating in all aspects of the City’s and Utilities’ contracting and procurement programs, including but not limited to, construction projects, supplies and materials purchases, and professional and personal service contracts.

Goals and Good Faith Efforts

Bidders responding to this solicitation shall comply with the MWBE program by making Good Faith Efforts to achieve the following aspiration goals for participation.

	CITY	
	MBE	WBE
Construction This goal includes Construction Manager at Risk.	10%	6%

Bidders shall submit MWBE information with their bids on the forms provided. This information will be subject to verification by the City prior to contract award. **As of July 1, 2009, contractors, subcontractors, suppliers, service providers, or MWBE members of joint ventures intended to satisfy City MWBE goals shall be certified by the NC Office of Historically Underutilized Businesses (NC HUB) only.** Firms qualifying as “WBE” for City’s goals must be designated as a “women-owned business” by the HUB Office. Firms qualifying as “MBE” for the City’s goals must be certified in one of the other categories (i.e.: Black, Hispanic, Asian American, American Indian, Disabled, or Socially and Economically Disadvantaged). Those firms who are certified as both a “WBE” and “MBE” may only satisfy the “MBE” requirement. **Each goal must be met separately. Exceeding one goal does not satisfy requirements for the other.** A complete database of NC HUB certified firms may be found at <http://www.doa.nc.gov/hub/>. An internal database of firms who have expressed interest to do business with the City and GUC is available at www.greenvillenc.gov. However, the HUB status of these firms must be verified by the HUB database. The City shall accept NCDOT certified firms on federally funded projects only. Please note: A contractor may utilize any firm desired. However, for participation purposes, all MWBE vendors who wish to do business as a minority or female must be certified by NC HUB.

The Bidder shall make good faith efforts to encourage participation of MWBEs prior to submission of bids in order to be considered as a responsive bidder. Bidders are cautioned that even though their submittal indicates they will meet the MWBE goal, they should document their good faith efforts and be prepared to submit this information, if requested.

The MWBE’s listed by the Contractor on the **Identification of Minority/Women Business Participation** which are determined by the City to be certified shall perform the work and supply the materials for which they are listed unless the Contractors receive prior authorization from the City to perform the work with other forces or to obtain materials from other sources. If a contractor is proposing to perform all elements of the work with his own forces, he must be prepared to document evidence satisfactory to the owner of similar government contracts where he has self-performed.

Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid
The Contractor shall enter into and supply copies of fully executed subcontracts with each MWBE or supply signed Letter(s) of Intent to the Project Manager after award of contract and prior to Notice to Proceed. Any amendments to subcontracts shall be submitted to the Project Manager prior to execution.

Instructions

The Bidder shall provide with the bid the following documentation:

Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

Affidavit A (if subcontracting)

OR

Identification of Minority/Women Business Participation
(if participation is zero, please mark zero—Blank forms will be considered nonresponsive)

Affidavit B (if self-performing; will need to provide documentation of similar projects in scope, scale and cost)

Within 72 hours or 3 business days after notification of being the apparent low bidder who is subcontracting anything must provide the following information:

Affidavit C (if aspirational goals are met or are exceeded)

OR

Affidavit D (if aspirational goals are not met)

After award of contract and prior to issuance of notice to proceed:

Letter(s) of Intent or Executed Contracts

****With each pay request, the prime contractors will submit the Proof of Payment Certification, listing payments made to MWBE subcontractors.**

*****If a change is needed in MWBE Participation, submit a Request to Change MWBE Participation Form. Good Faith Efforts to substitute with another MWBE contractor must be demonstrated.**

Minimum Compliance Requirements:

All written statements, affidavits, or intentions made by the Bidder shall become a part of the agreement between the Contractor and the City for performance of contracts. Failure to comply with any of these statements, affidavits or intentions or with the minority business guidelines shall constitute a breach of the contract. A finding by the City that any information submitted (either prior to award of the contract or during the performance of the contract) is inaccurate, false, or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the City whether to terminate the contract for breach or not. In determining whether a contractor has made Good Faith

Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid Attach to Bid
Efforts, the CITY will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts.

Identification of Minority/Women Business Participation

I, _____, (Name of Bidder)

do hereby certify that on this project, we will use the following minority/women business enterprises as construction subcontractors, vendors, suppliers or providers of professional services.

Firm Name, Address and Phone #	Work type	*MWBE Category

*MWBE categories: Black, African American (B), Hispanic, Latino (L), Asian American (A) American Indian (I), Female (F) Socially and Economically Disadvantaged (S) Disabled (D)

If you will not be utilizing MWBE contractors, please certify by entering zero "0"

The total value of MBE business contracting will be (\$)_____.

The total value of WBE business contracting will be (\$)_____.

City of Greenville **AFFIDAVIT A – Listing of Good Faith Efforts**

County of _____

(Name of Bidder)

Affidavit of _____

I have made a good faith effort to comply under the following areas checked:

Bidders must earn at least 50 points from the good faith efforts listed for their bid to be considered responsive. (1 NC Administrative Code 30 I.0101)

- 1 – (10 pts)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor, or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- 2 --(10 pts)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- 3 – (15 pts)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4 – (10 pts)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- 5 – (10 pts)** Attended prebid meetings scheduled by the public owner.
- 6 – (20 pts)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7 – (15 pts)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- 8 – (25 pts)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- 9 – (20 pts)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- 10 - (20 pts)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

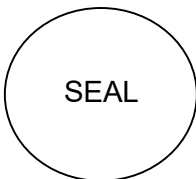
The undersigned, if apparent low bidder, will enter into a formal agreement with the firms listed in the Identification of Minority/Women Business Participation schedule conditional upon scope of contract to be executed with the Owner. Substitution of contractors must be in accordance with GS143-128.2(d) Failure to abide by this statutory provision will constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of the minority/women business commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

**City of Greenville --AFFIDAVIT B-- Intent to Perform
Contract with Own Workforce.**

County of _____

Affidavit of _____

(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____

_____ contract.

(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform all elements of the work on this project with his/her own current work forces; and

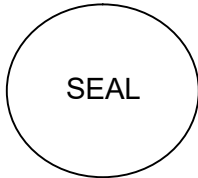
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20__

Notary Public _____

My commission expires _____

City of Greenville - **AFFIDAVIT C** - Portion of the Work to be Performed by MWBE Firms

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the portion of the work to be executed by MWBE businesses as defined in GS143-128.2(g) and the COG/CITY MWBE Plan sec. III is equal to or greater than 16% of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being low bidder.

Affidavit of _____ I do hereby certify that on the _____
 (Name of Bidder)

Project ID# _____ (Project Name) Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

Name and Phone Number	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

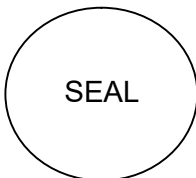
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

City of Greenville **AFFIDAVIT D – Good Faith Efforts**

County of _____

(Note this form is to be submitted only by the apparent lowest responsible, responsive bidder.)

If the goal of 16% participation by minority/women business **is not** achieved, the Bidder shall provide the following documentation to the Owner of his good faith efforts:

Affidavit of _____ I do hereby certify
that on the _____
(Name of Bidder)

Project ID# _____ (Project Name) _____
Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority business enterprises and a minimum of _____% of the total dollar amount of the contract with women business enterprises. Minority/women businesses will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. (Attach additional sheets if required)

Name and Phone Number	*MWBE Category	Work description	Dollar Value

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Examples of documentation required to demonstrate the Bidder's good faith efforts to meet the goals set forth in these provisions include, but are not necessarily limited to, the following:

- A. Copies of solicitations for quotes to at least three (3) minority business firms from the source list provided by the State for each subcontract to be let under this contract (if 3 or more firms are shown on the source list). Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
 - E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Copy of pre-bid roster.
- G. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- H. Letter detailing reasons for rejection of minority business due to lack of qualification.
- I. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the

Do not submit with the bid Do not submit with the bid Do not submit with the bid Do not submit with the bid

next lowest responsible and responsive bidder.

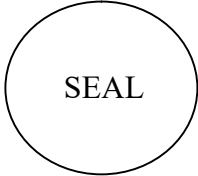
Pursuant to GS143-128.2(d), the undersigned will enter into a formal agreement with MWBE Firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of the contract.

The undersigned hereby certifies that he or she has read the terms of this commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20____

Notary Public _____

My commission expires _____

LETTER OF INTENT MWBE Subcontractor Performance

Please submit this form or executed subcontracts with MWBE firms after award of contract and prior to issuance of notice to proceed.

PROJECT: _____
(Project Name)

TO: _____
(Name of Prime Bidder/Architect)

The undersigned intends to perform work in connection with the above project as a:

____ Minority Business Enterprise _____ Women Business Enterprise

The MWBE status of the undersigned is certified the NC Office of Historically Underutilized Businesses (required). ___ Yes ___ No

The undersigned is prepared to perform the following described work or provide materials or services in connection with the above project at the following dollar amount:

Work/Materials/Service Provided	Dollar Amount of Contract	Projected Start Date	Projected End Date

(Date)

(Address)

(Name & Phone No. of MWBE Firm)

(Name & Title of Authorized Representative of MWBE)

(Signature of Authorized Representative of MWBE)

REQUEST TO CHANGE MWBE PARTICIPATION

(Submit changes only if notified as apparent lowest bidder, continuing through project completion)

Project: _____

Bidder or Prime Contractor: _____

Name & Title of Authorized Representative: _____

Address: _____ **Phone #:** _____

_____ **Email Address:** _____

Total Contract Amount (including approved change orders or amendments): \$ _____

Name of subcontractor: _____

Good or service provided: _____

Proposed Action:

Replace subcontractor

Perform work with own forces

For the above actions, you must provide one of the following reasons (Please check applicable reason):

The listed MBE/WBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract.

The listed MBE/WBE is bankrupt or insolvent.

The listed MBE/WBE fails or refuses to perform his/her subcontract or furnish the listed materials.

The work performed by the listed subcontractor is unsatisfactory according to industry standards and is not in accordance with the plans and specifications; or the subcontractor is substantially delaying or disrupting the progress of the work.

If replacing subcontractor:

Name of replacement subcontractor: _____

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). Yes No

Dollar amount of original contract \$ _____

Dollar amount of amended contract \$ _____

Other Proposed Action:

Increase total dollar amount of work

Add additional subcontractor

Decrease total dollar amount of work

Other

Please describe reason for requested action: _____

If adding additional subcontractor:*

The MWBE status of the contractor is certified by the NC Office of Historically Underutilized Businesses (required). Yes No

**Please attach Letter of Intent or executed contract document*

Dollar amount of original contract \$ _____

Dollar amount of amended contract \$ _____

Interoffice Use Only:

Approval Y N

Date _____

Signature _____

Pay Application No. _____ Purchase Order No. _____

Proof of Payment Certification

MWBE Contractors, Suppliers, Service Providers

Project Name: _____

Prime Contractor: _____

Current Contract Amount (including change orders): \$ _____

Requested Payment Amount for this Period: \$ _____

Is this the final payment? Yes No

Firm Name	MWBE Category*	Total Amount Paid from this Pay Request	Total Contract Amount (including changes)	Total Amount Remaining

*Minority categories: Black, African American (**B**), Hispanic or Latino (**L**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**S**) Disabled (**D**)

Date: _____

Certified By: _____

Name

Title

Signature

SPECIAL PROVISIONS

SP-02 WORK EXPERIENCE AND PROFESSIONAL QUALIFICATIONS

During the bid evaluation process, the work experience, quality of workmanship, and professional qualifications of contractors and, where relevant, subcontractors expected to do specialized type of work, will be considered of extreme importance and weighed heavily.

As part of the bid submission and evaluation process, the City will require all bidders to demonstrate experience and proficiency in the below specialty areas. Additional qualifications required as a part of Article 3 – Qualifications of Bidders within the Instructions to Bidders for Construction Contract shall only be submitted by the Lowest Responsible Bidder.

1. Active Shoring and Sheeting
2. Installation of Reinforced Concrete Box Culvert and 72” Pipe and Greater
3. Permit-Required Confined Spaces

To illustrate experience and proficiency, Contractors will need to provide relevant supplemental information and data for each specialty area, including, but not limited to the following:

1. Documentation of at least three (3) successfully completed projects of similar scope performed as prime contractor and/or by the intended subcontractor within the last five (5) years.
2. The name of the foreman or supervisor (that will be expected to remain on site at all times per the terms of the Contract), including a description of his or her relevant prior work experience.
3. The names and supporting materials showing the experience of any subcontractors anticipated to be used on the project.
4. A list of the type and amount of heavy and other commercial equipment that will be used during the construction process.
5. Documentation of Permit Required Confined Space.

The bidder must submit the information on the provided sheets located in the Available Project Information section at the time of bid submittal. It is anticipated that the successful bidder will be required to have relevant work experience consisting of at least three (3) projects preferably within the last five (5) years for each specialty; provided, the City may weigh and vary, in its reasonable discretion, such experiential and professional standards and requirements, to the end that an award will be recommended to the lowest responsible bidder with demonstrated quality and experience in similar project work.

The bidder must use the provided sheets in supplying this information and may reproduce the sheets provided to show additional experience.

SPECIAL PROVISIONS

SP-03 EROSION AND SEDIMENT CONTROL

GENERAL

A. SUMMARY

1. Section Includes installing, maintaining, and removing:
 - a. Silt Fence.
 - b. Temporary Construction Entrances.
 - c. Dewatering Devices.
2. Rip Rap.
 - a. Inlet Protection.
3. Related Sections:
 - a. NCDOT Section 226 - Comprehensive Grading
 - b. NCDOT Section 1605 – Temporary Silt Fence
 - c. NCDOT Section 1639 – Special Stilling Basin
 - d. SP-45 – Construction Entrance
 - e. SP-46 – Inlet Protection

B. REFERENCES

1. ASTM International:
 - a. ASTM C602 – Standard Specification for Agricultural Liming Materials.
 - b. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - c. ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil in Place by the Sane-Cone Method
 - d. ASTM D2167 – Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 - e. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
2. NCDOT Standard Specifications:
 - a. Standard Specifications for Roads and Structures, latest version, published by the North Carolina Department of Transportation.

C. SUBMITTALS

1. Product Data: Submit data on geotextile, posts, woven wire, concrete mix design, and pipe.
2. Manufacturer's Certificate: Certify products and aggregates meet or exceed specified requirements.

D. QUALITY ASSURANCE

1. Perform Work in accordance with Division 16 of NCDOT Standard Specifications.
2. Maintain one copy of document on site.

E. PRE-INSTALLATION MEETINGS

1. Convene minimum one week prior to commencing work of this Section.

SPECIAL PROVISIONS

PRODUCTS

A. GEOTEXTILE MATERIALS

1. Engineering Fabric Materials: Non-biodegradable conforming to Section 1056 of NCDOT Standard Specifications:
 - a. Silt Fence: Type 3, Class A or B Engineering Fabric.
 - b. Under Rip Rap or Construction Entrances: Type 2 Engineering Fabric.

B. STONE, AGGREGATE, AND SOIL MATERIALS

1. Stone for Pump Around: Class A erosion control stone conforming to section 1042 of the NCDOT Standard Specifications. Minimum size 2 inches, midrange size 4 inches, and maximum size 6 inches equally distributed.
2. Stone for Riprap and Check Dam: Class B erosion control stone conforming to Section 1042 of the NCDOT Standard Specifications. Minimum size 5 inches, midrange size 8 inches, and maximum size 12 inches equally distributed.
3. Stone for Pump Around and Plunge Pool: Class 1 erosion control stone conforming to Section 1042 of the NCDOT Standard Specifications. Minimum size 5 inches, midrange size 10 inches, and maximum size 17 inches equally distributed.
4. Washed Stone: Coarse aggregate, Gradation No. 57 conforming to Section 1005 and 1006 of the NCDOT Standard Specifications.
5. Aggregate for Construction Entrance: Coarse aggregate, Gradation No. 4 or larger with maximum size of 3 inch, conforming to Sections 1005 and 1006 of the NCDOT Specifications.
6. Soil Fill: Clean natural soil with a plasticity index of 15 or less that is free of clay, rock, or gravel lumps larger than 2 inches in any dimension; debris; waste; frozen material; and any other deleterious material that might cause settlement. Suitable material excavated from the site may be used as soil fill under optimum moisture conditions.

C. PLANTING MATERIALS

1. General: Conform to North Carolina Board of Agriculture rules and regulations as specified in Section 1060 of NCDOT Standard Specifications for seed, agricultural ground limestone, fertilizers, and mulch.
2. Temporary Seed Mixture:
 - a. Late winter and early spring: Rye and Annual Lespedeza (Kobe)
 - b. Summer: German Millet.
 - c. Fall: Rye.
3. Fertilizer: Commercial grade; recommended for grass.
4. Lime: ASTM C602, Class O agricultural ground limestone containing a minimum 80 percent calcium carbonate equivalent.
5. Mulch: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

D. ACCESSORIES

1. Posts for Silt Fence and Inlet Protection: Steel posts 5 feet long, 1-3/8 inches wide, minimum weight 1.25 lbs/ft. conforming to Section 1605 of NCDOT Standard Specifications.
2. Woven Wire Fence for Silt Fence: Minimum 32 inches high, minimum 5 horizontal wires, vertical wires spaced 12 inches apart, minimum 10 gage top and bottom

SPECIAL PROVISIONS

wires, and minimum 12-1/2 gage; all other wires conforming to Section 1605 of NCDOT Standard Specifications.

3. Attachment Devices for Silt Fence: No. 9 staple, minimum 1-1/2 inches long, or other approved attachment devices.
4. Hardware Cloth for Inlet Protection: 24 gage, 1/4-inch mesh opening hardware cloth.

E. SOURCE QUALITY CONTROL (AND TESTS)

1. Perform tests on cement, aggregates, and mixes to ensure conformance with specified requirements.
2. Make rock available for inspection at producer's quarry prior to shipment. Notify Architect/Engineer at least seven days before inspection is allowed.
3. Allow witnessing of inspections and tests at manufacturer's test facility. Notify Architect/Engineer at least seven days before inspections and tests are scheduled.

EXECUTION

A. EXAMINATION

1. Verify compacted subgrade is acceptable and ready to support devices and imposed loads.
2. Verify gradients and elevations of base or foundation for other work are correct.

B. SILT FENCE

1. Install in accordance with Section 1605 of NCDOT Standard Specifications at locations shown on Drawings.
2. Use wire fence with Class A fabric.
3. Class B fabric may be used without woven wire backing subject to the following:
 - a. Fabric is approved by Architect/Engineer.
 - b. Maximum post spacing is 6 feet.
 - c. Posts are inclined toward runoff source not more than 20 degrees from vertical.

C. TEMPORARY CONSTRUCTION ENTRANCES

1. Excavate and compact subgrade as specified in Section 226 – Comprehensive Grading.
2. Install construction entrances to the dimensions and locations as shown on Drawings. Minimum thickness is 6 inches.
3. Mound aggregate near intersection with public road to prevent site runoff entering road.
4. Periodically dress entrances with 2-inch thick course aggregate when aggregate becomes clogged with soil.

D. INLET PROTECTION

1. Install four posts around drainage structure and attach hardware cloth as indicated on Drawings.
2. Place Class B erosion control stone at base of fabric and mound at approximately 2:1.
3. Place washed stone filter blanket on upstream side(s).

B. DEWATERING DEVICES

1. Use geotextile and sediment control stone that is clean and without debris

SPECIAL PROVISIONS

2. Use special stilling basin that is a water permeable geotextile bag that traps sand, silt, and fines as sediment-laden water is pumped into it, or as runoff flows into it.
3. Provide special stilling basin of a bag constructed to a minimum size of 10 feet x 15 feet made from a nonwoven geotextile.
 - a. Provide a sew-in 8 inches (max) spout for receiving pump discharge.
 - b. Sew bag seams with a double needle machine using a high strength thread. The seams shall have a minimum wide width strength of 60 lbs. per inch in accordance with ASTM D4884.

E. FIELD QUALITY CONTROL

1. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.
2. Perform laboratory material tests in accordance with ASTM D698.
3. Perform in place compaction tests in accordance with the following:
 - a. Density Tests: ASTM D1556, ASTM D2167, or ASTM D6938.
 - b. Moisture Tests: ASTM D6938.
4. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest.
5. Frequency of Tests: Twice per lift for every 10,000 square feet.

F. CLEANING

1. When sediment accumulation in sedimentation structures has reached a point one-half depth of sediment structure or device, remove and dispose of sediment.
2. Do not damage structure or device during cleaning operations.
3. Do not permit sediment to erode into construction or site areas or natural waterways.
4. Clean channels when depth of sediment reaches approximately one-half channel depth.

UNIT PRICE - MEASUREMENT AND PAYMENT

A. Silt Fence:

1. Basis of Measurement: Incidental and included with Erosion and Sediment Control line item of lump sum.
2. Basis of Payment: Includes excavating, furnishing stakes and wire fence, and furnishing geotextile fabric.

B. Temporary Construction Entrance:

1. Basis of Measurement: Incidental and included with Erosion and Sediment Control line item of lump sum.
2. Basis of Payment: Includes clearing, excavating, removing unsuitable material, backfilling, placing embankment, placing aggregate, and compaction.

C. Dewatering Devices

1. Basis of Measurement: Incidental and included with Erosion and Sediment Control line item of lump sum.
2. Basis of Payment: Includes all stone, geotextile, stilling bags, material, and procedures necessary for sediment control during dewatering.

SPECIAL PROVISIONS

D. Inlet Protection:

1. Basis of Measurement: Incidental and included with Erosion and Sediment Control line item of lump sum.
2. Basis of Payment: Includes excavating, placing posts and wire mesh, and placing aggregate.

E. Erosion and Sediment Control:

1. Basis of Measurement: Erosion and Sediment Control will be paid for at the contract lump sum price for the work detailed in this section.
2. Basis of Payment:
EROSION AND SEDIMENT CONTROL.....LS

SP-04 MATERIALS SAMPLING AND TESTING

An independent company for materials sampling and testing with a recognized and approved testing laboratory will be provided. The expense of such tests shall be borne by the City unless otherwise specified. No direct payment will be made for coordination of these tests as such costs will be considered incidental to other work being paid for by the various items in the contract.

The Contractor shall schedule and coordinate each test. The City shall have the option to reject request for testing due to the Contractor's inadequate preparation of material or other reasonable causes determined by the City as necessary for the delay of testing. The Contractor shall notify the City 48 hours ahead of time of the scheduled test and shall supply all material to independent company for tests. The independent company will provide test results to the City. Any cost resulting from the City requiring recompaction or retesting of a previously compacted and tested fill shall be borne by the Contractor.

SP-05 SURVEYING AND LAYOUT

Surveying and Layout for the construction of this project shall be the responsibility of the Contractor. All work under this Contract shall be constructed in accordance with Section 801 of the *2018 Standard Specifications* and with the lines and grades shown on the Contract Drawings or as directed by the Engineer. The Contractor shall be responsible for all the field horizontal layout and vertical control of the improvements to be constructed under this Contract including connection to new and existing facilities and other items necessary for completion of the Contract.

The Engineer will furnish the Contractor Contract Drawings showing the location of the proposed improvements and appurtenances to be constructed under this Contract. The contract drawings will also identify the location and elevation of project control benchmarks to be used for field project control. The Contractor shall be responsible for all other ground control.

All elevations refer to the assumed project datum. Elevation of existing ground, structures, and appurtenances are believed to be reasonably correct but are not guaranteed to be absolute and therefore are presented only as an approximation. Any error or apparent discrepancy in the data

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shown or omissions of data required for accurately accomplishing the stake-out survey shall be referred immediately to the Engineer for interpretation or correction.

The Contractor shall furnish all personnel, materials, and equipment necessary for the layout work required for work under this Contract. The Contractor shall be solely responsible for all locations, dimensions, and levels, and shall field verify all elevations and dimensions. No data other than the information contained in the Contract Drawings and Specifications, and written orders of the Engineer shall justify departure from the dimensions or levels required by the Contract Drawings.

The Contractor's layout work shall be done by a competent NC Registered Professional Land Surveyor, registered to practice in North Carolina and capable of interpreting the survey data furnished and control points established on the ground for the purpose of laying out his work both horizontally and vertically. The surveyor shall use the existing survey information to replace existing items being removed and replaced in kind. The Contractor shall furnish the Engineer with the name and qualifications of the proposed Professional Land Surveyor, prior to commencing work.

Contractor shall establish all base lines for the location of the principal component parts of the work together with a suitable number of bench marks adjacent to the work. Based upon the information provided by the Contract Drawings, the Contractor shall develop and make all detail surveys necessary for construction including slope stakes for all working points, lines, and elevations.

Contractor shall have the responsibility to carefully preserve the bench marks, reference points and stakes; and in the case of destruction thereof by the Contractor or resulting from his negligence, the Contractor shall be charged with the expense and damage resulting there from and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points, and stakes.

Existing or new control points, property markers, and monuments that will be or are destroyed during the normal causes of construction shall be reestablished by the Contractor; and all reference ties recorded therefore shall be furnished to the Engineer. All computations necessary to establish the exact position of the work shall be made and preserved by the Contractor.

The Engineer may check all or any portion of the layout work, at any time during construction. The Contractor shall afford all necessary assistance to the Engineer in carrying out such checks. Any necessary corrections to the work shall be immediately made by the Contractor. Such checking by the Engineer shall not relieve the Contractor of any responsibilities for the accuracy of completeness of his work.

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SP-06 SAFETY OBLIGATIONS

Workplace safety applies to all employers as a matter of law and is enforced through OSHA, The Occupational Safety and Health Administration. The contract between the City of Greenville and any contractor shall identify project manager, supervisor and the safety and environmental officer (or representative) responsible for health, safety and environmental compliance. Contractors and subcontractors must perform their duties in a manner that will not endanger the safety and health of its employees, City of Greenville employees and the public as they work.

The contractor shall meet with the City of Greenville Project Engineer to discuss contract safety issues in detail. The contractor must comply with all federal, state, and local safety and environmental regulations, laws, standards, etc. as it is related to the work being performed. The contractor must make known the safety provisions of the contract to its employees and subcontractors. The contractor's safety and environmental officer or safety representative must ensure all employees and subcontractors are trained adequately on the applicable regulations and further enforce all applicable regulations.

SP-07 WORK HOURS and INTERMEDIATE CONTRACT TIME

The City standard work hours are Monday thru Friday 8:00 AM to 5:00 PM. No work shall commence outside of standard work hours or during the weekend without written approval from the City Engineer or their authorized agent.

If the Contractor requests work hours to commence on weekends, holidays, or exceed the standard 40 hour work week, the Contractor will be responsible for additional costs associated with CEI services. An hourly rate of \$100/hour/person (minimum of 4 hour) will be incurred by the Contractor and deducted from Contractor payment.

Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures will not be required during these periods, unless otherwise directed by the Engineer.

The Contractor should review the City's Noise Ordinance (http://www.greenvillenc.gov/uploadedFiles/Departments/City_Clerk/Information/Noise%20Ordinance.pdf) which applies to construction operations. Construction operations are allowed from **7:00 a.m. to 9:00 p.m. on weekdays** and **8:00 a.m. to 9:00 p.m. on weekends** for which building permits have been issued or construction operations not requiring permits; providing all equipment is operated in accord with the manufacturer's specifications and with all standard equipment manufacturers' mufflers and noise-reducing equipment in use and in proper operating condition.

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SP-08 MAINTAINING ACCESS

Limitation of Operations

The Contractor shall control his operations and the operations of his subcontractors and all suppliers so as to provide for the free and unobstructed movement of traffic.

When the work requires the Contractor to conduct his operations in an area, which disrupts the public access, the work shall be coordinated with the Director of Engineering at least 48 hours prior to commencement of such work.

The Contractor shall not close an area until so authorized by the Director of Engineering and until the necessary temporary sign(s) is in place.

SP-09 STORAGE OF MATERIALS

In addition to *Section 106-5 of the January 2018 North Carolina Department of Transportation Standards and Specifications for Roadways and Structures* the following shall also apply:

Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. This does not apply to excavated and/or waste material from the project that shall be regulated by reclamation plans development and approval. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the Director of Engineering a copy of the property owner's permission.

The Contractor shall be responsible for locating and providing any additional storage areas (not shown on the plans) for construction materials and equipment. The material and equipment storage shall comply with all local and state ordinances throughout the construction period. The Contractor shall restore the storage area to its original condition upon completion of the Project or upon such time as directed by the Engineer. Such restoration shall be at no additional cost to the City.

The Contractor shall be responsible for the safeguarding of materials and equipment against fire, theft and vandalism and shall not hold the City responsible in any way for the occurrences of same. The Contractor shall furnish and erect, at no additional cost, whatever works may be necessary for the protection of the public, including but not limited to barricades, fences, etc. Prior to final payment being made, the Contractor shall obtain a release from the property owner of the storage area utilized for the Project.

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SP-10 USE OF PREMISES

The Contractor shall confine his equipment, storage of materials, and construction operations to the contract limits as shown on the Drawings or if no contract limits are shown, to the right-of-way shown and as prescribed by ordinances or permits or as may be directed by the City of Greenville and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

The Contractor shall comply with all reasonable instructions of the City of Greenville and the ordinances and codes of the City of Greenville, regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

SP-11 ABNORMAL WEATHER CONDITIONS

Abnormal weather conditions for rain shall be derived from the most recent 20-year (minimum) average for the nearest NOAA weather reporting station. The mean number of days of precipitation per month of 0.10 inch or more shall establish the mean number of weather days for the period. When the actual number of calendar days the Contractor could not work due to abnormal weather conditions exceeds the monthly mean as determined above, the Contract shall be extended the number of days in excess of the monthly mean for each month during the Contract period. A Working day is a day when the Contractor or his Subcontractors could work for more than four hours. If the actual number of calendar days the Contractor could not work due to abnormal weather conditions is less than the monthly mean, then the number of days the Contract was extended shall be reduced for the Contract period. At the end of the Contract period the total Contract Time will be the total adjusted. Should the total days the Contractor cannot work due to abnormal weather conditions be less than the mean for the Contract period, no time will be deleted from the Contract. The time extension awarded to the Contractor shall be for time only. No increase in Contract Price will be considered. Rain days shall be submitted with monthly pay-applications.

SP-12 WATER SUPPLY

The Contractor will be responsible for organizing a water source. No separate payment will be made for this work, and all associated costs will be considered incidental to other items in the contract.

SP-13 SUBMITTALS AND SHOP DRAWINGS

Unless otherwise specified herein, the Contractor shall submit shop drawings for construction materials for acceptance by the Engineer, prior to use of any material on the project site. Submittals shall be made for, but not limited to, the following items: asphalt, concrete, storm drainage, public utility, and structure products. The Contractor shall submit shop drawings for each material to be reviewed by the Engineer utilizing the Electronic Project Management System (EPMS). The Engineer shall have twenty-one (21) calendar days to complete the review. Upon

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review, notification will be provided to the City and the Contractor of acceptance, corrections needed, or rejection of the materials. No separate payment will be made for this work, and all associated costs will be considered incidental to other items in the contract.

SP-14 REQUEST FOR INFORMATION (RFI) PROCEDURES

All requests for information need to be sent to the Engineer through the Electronic Project Management System (EPMS). The Engineer will respond in a timely manner.

SP-15 CONSTRUCTION PHOTOGRAPHS AND VIDEO RECORDING

DESCRIPTION

- A. The Contractor shall employ a competent photographer to take construction record photographs and audio/video record all construction areas within the project area prior to, during the course of, and after the Work.
- B. Furnish all labor, materials and equipment and furnish color audio video recording of the project site as specified herein.
- C. Furnish to the Owner an original and one copy of a continuous color audio video recording along the entire route of the proposed pipeline. The recording shall be taken prior to any construction activity. In addition, at certain locations, the Engineer/Owner reserves the right to request preconstruction photography or video recording after clearing operations have been performed but prior to commencement of any construction activities.
- D. The Owner reserves the right to reject the audio video recording because of poor quality, unintelligible audio or uncontrolled pan or zoom. Any recording rejected by the Owner shall be rerecorded at no cost to the Owner. Under no circumstances shall construction begin until the Owner has received and accepted the audio video recordings.
- E. The recording shall be performed by a qualified, established audio video recording firm knowledgeable in construction practices and experienced in the implementation of established inspection procedures.

Photography Required

- A. Ground views shall be provided of the culvert project corridor before any work begins. Provide three prints of each view.
- B. The Contractor shall take ten photographs of the project work for each Application for Payment. Provide photographs taken on cutoff date for each scheduled Application for Payment.
- C. Views and quantities required:
 - 1. At each specified time, ground view photographs projected from a minimum of ten different views, as directed and approved by the Engineer.

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2. Provide three prints and one electronic copy of each view.
3. Photographer shall agree to furnish additional prints to Owner and the Engineer at commercial rates applicable to time of purchase. Photographer shall also agree to participate as required in any litigation requiring the photographer as an expert witness.

Preconstruction Audio/Video DVDs

- A. DVD recordings shall be made not more than 60 days prior to construction and 60 days after Substantial Completion. No construction shall begin prior to review and approval of the DVDs covering the construction area by the Engineer. The Engineer shall have the authority to reject all or any portion of a DVD not conforming to specifications and require that it be redone at no additional charge. The Contractor shall reschedule unacceptable coverage within five days after being notified. The Engineer shall designate those areas, if any, to be omitted from or added to the audio/video coverage. All original DVDs and written records shall become the property of Owner.
- B. The Contractor shall engage the services of a professional videographer. The color audio/video DVDs shall be prepared by a responsible commercial firm known to be skilled and regularly engaged in the business of construction color audio/video DVD documentation. The videographer shall furnish to the Engineer a list of all equipment to be used for the audio/video recording, (i.e., manufacturer's name, model number, specifications, and other pertinent information). Additional information to be furnished by the videographer shall include the names and addresses of two references that the videographer has performed color audio/video recording for projects of a similar nature including one within the last twelve months.

METHODS

Technique

- A. Factual presentation
- B. Correct exposure and focus
 1. High resolution and sharpness
 2. Maximum depth-of-field
 3. Minimum distortion

Views Required

- A. Photograph from location to adequately illustrate condition of construction and state of progress.
 1. Consult with the Engineer at each period of photography for instructions concerning views required.

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Assembly of Prints

- A. Each print shall be inserted in a separate, archival type, nonglare, three (3) hole punched photo protector.
- B. Provide suitably sized 3-ring binder for each set of prints (total of three). Binders shall be provided in sufficient quantity to hold all photographs taken for the duration of the contract. Each binder shall be labeled by engraving on the front and spine with the project name.

Delivery of Prints

- A. Deliver prints to the Engineer to accompany each Application for Payment.
- B. Distribution of prints as soon as processed is anticipated to be as follows:
 - 1. Engineer (one set)
 - 2. Owner (one set)
 - 3. Project Record File (one set)
- C. No construction shall start until preconstruction photography and videotaping is completed and submitted to Engineer.

Audiovisual Recording

- A. The recordings shall contain coverage of all surface features within the construction zone of influence. These features shall include, but not be limited to, all roadways, pavement, retention ponds, railroad tracks, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, landscaping, trees, visible utilities, fences, structures, and buildings. Of particular concern shall be the condition of existing vegetation, terrain, and structures and the existence or nonexistence of any faults, fractures, or defects. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.
- B. Accompanying the video recording of each DVD shall be a corresponding and simultaneously recorded audio recording. This audio recording, exclusively containing the commentary of the camera operator, shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the features being shown in the video portion of the recording. The audio recording shall also be free from any conversation between the camera operator and any other production technicians.
- C. In general, the views will comprise a 360-degree panorama every 500 feet of sewer length plus specifically designated close-up views for pre-and post-construction video photography.
- D. DVD Indexing
 - 1. DVD Identification: All DVDs and plastic boxes (archival type) shall be permanently labeled and shall be properly identified by DVD number, Owner's name, date of taping, location and standing limit of DVD and project name and number.

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2. DVD Log: Each DVD shall have a log of that DVD's contents. The log shall describe the various segments of coverage contained on that DVD in terms of the names of the streets or easements, coverage beginning and end, directions of coverage, video unit counter numbers, engineering stationing numbers when possible, and the date of the recording. Video logs shall be supplied in three ring vinyl cover binders and labeled on the front and spine with project name, date and location (i.e., service area).
- E. Visibility: All recording shall be performed during times of good visibility; no recording shall be done during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subject and to produce sharp, bright video recordings of those subjects.
- F. The average rate of travel during a particular segment of coverage shall be directly proportional to the number, size, and value of the surface features within that construction area's zone of influence.
- G. Camera Operation
1. Camera Height and Stability: When conventional wheeled vehicles are used as conveyances for the recording system, the vertical distance between the camera lens and the ground shall not exceed 10 feet. The camera shall be firmly mounted such that transport of the camera during the recording process will not cause an unsteady picture.
 2. Camera Control: Camera pan, tilt, zoom-in and zoom-out rates shall be sufficiently controlled such that recorded objects shall be clearly viewed during video playback. In addition, all other camera and recording system controls, such as lens focus and aperture, video level, pedestal, chroma, white balance and electrical focus shall be properly controlled or adjusted to maximize picture quality.
 3. Viewer Orientation Techniques: The audio and video portions of the recording shall maintain viewer orientation. To this end, overall establishing views of all visible house and business addresses shall be utilized. In areas where the proposed construction location will not be readily apparent to the video viewer, highly visible yellow flags shall be placed, by the Contractor, in such a fashion as to clearly indicate the proposed center line of construction.

SUBMITTALS

- A. Color:
1. Paper: Single weight, color print paper
 2. Finish: Matte
 3. Size: 8- x 10-inch
- B. Identify each print on back, listing:
1. Name of Project
 2. Orientation of View
 3. Date and time of exposure

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4. Name and address of photographer
5. Photographer's numbered identification of exposure

DVD

- A. The video shall be on a professional quality DVD.

Audio/Video Recording

- A. The total audio/video system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project. The video portion of the recording shall produce bright, sharp, clear pictures with accurate colors and shall be free from distortion or any other form of picture imperfection. All video recordings shall be electronic means, display on the screen the time of day, the month, day and year of the recording. This time and date information must be continuously and simultaneously generated with the actual recording. The audio portion of the recording shall produce the commentary of the camera operator with proper clarity and be free from distortion.

- B. DVDs

DVDs shall be new and thus shall not have been used for any previous recording. Two complete sets of DVDs (one original and one copy) and logs shall be provided upon acceptance of recordings.

PAYMENT

There will be no separate measurement or payment for this work, and all associated costs will be considered incidental to other items in the contract.

SP-16 FIRE DEPARTMENT COORDINATION

The Contractor shall always maintain emergency fire equipment access to all fire hydrants within the project area. Notify the City Fire Department, 252-329-4390 seventy-two (72) hours prior to work being performed within 200 feet of any fire hydrant.

SP-17 QUANTITY TICKETS

All quantity tickets for items not measurable in place shall be submitted in duplicate to the Project Inspector within seventy-two (72) hours after receipt of the material on the job. Each ticket shall indicate the date, contractor, job location and name, type of material, quantity of material, truck number and signature of the Contractor or his authorized representative.

No tickets will be accepted after seventy-two (72) hours have elapsed between the time of delivery and the submittal of tickets to the Project Inspector.

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SP-18 AS-BUILT AND RECORD DRAWING

The Contractor shall be fully responsible for performing all work and collection of all necessary data to provide the City of Greenville Record Drawings in accordance with City of Greenville Standard Drawing C30.01 and C30.02 and as described in this provision. Record drawings of water and sanitary sewer improvements shall be prepared in accordance with Greenville Utilities Commission's standards and requirements. Contractor shall submit red line drawings for completed work detailing Record Drawing data identified below with monthly pay-applications.

The Record Drawings are not intended to document the final quantities, but are intended to show approved revisions to the contract design as stated below. The Contractor is responsible for the As-Built Drawings and the Engineer of Record will complete the final Record Drawing. The As-Built Drawing, including the project survey shall be completed by a registered professional land surveyor or a licensed professional engineer in the State of North Carolina. Identification and location of site improvements shall conform to the recommended standards of the North Carolina Licensing Board for Professional Engineers and Land Surveyors. All work performed by the designated PLS or PE, shall be accompanied by the seal and signature of the PLS or PE.

The As-Built Drawing shall consist of a full-size set of blue/black line prints and digital AutoCAD Civil 3D 2018 (or newer) files with approved field changes delineated in red ink. All redline revisions shall be located properly on the drawing and shall be true to scale. The Contractor shall supply two (2) copies of the signed As-Built Drawing in paper format and the electronic digital file to the Engineer of Record for review. The Contractor will need to provide any clarification or additional information as deemed necessary by the Engineer to meet the City's requirements.

The As-Built Drawing shall be submitted to the Engineer of Record within thirty (30) calendar days following the date of the City final acceptance of the project.

The following identifies the requirements, information, and format for submitting Record Drawings to the Engineering Division of the Public Works Department for review and approval. Record Drawings shall be submitted for any street and city storm drainage infrastructure proposed for maintenance by the City of Greenville. Record Drawings shall be submitted and approved prior to scheduling of the pre-final street acceptance inspection.

All Record Drawings shall include, but not necessarily be limited to, the following:

1. Streets
 - a. Horizontal alignment of the centerline (changes to be noted)
 - b. Centerline final surface elevation
 - i. Intersections – crossing of street centerlines
 - ii. Points of vertical inflection (pvi) – street centerline at point of inflection
 - iii. Radius points of cul-de-sacs
 - iv. Radius points for “hammerheads”
 - v. End of pavement construction (street centerline)

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- c. Width (verification with approved plans)
 - d. Top of curb elevations for relocated curb
2. Sidewalks and Curb Ramps (verification with approved plans)
 - a. Width
 - b. Length
 - c. Thickness
 - d. Material
 - e. Location
3. Stormwater Pipes
 - a. Size
 - b. Shape
 - c. Material
 - d. Length
 - e. Slope
4. Sanitary Sewer Pipes
 - a. Size
 - b. Shape
 - c. Material
 - d. Length
 - e. Slope
5. Water Lines
 - a. Size
 - b. Shape
 - c. Material
 - d. Length
 - e. Slope
 - f. Valve Locations
 - g. Valve/Junction Depth
6. Structures (Junction Box, Drop Inlets, Catch Basins, Interference Boxes, Outlet Structures)
 - a. Rim/hood elevation
 - b. All pipe invert elevations
 - c. Material
 - d. Construction type (pre-cast, masonry block, or cast-in-place)
 - e. Interior bottom elevation of structure
 - f. Cover (lid/grate) dimensions
 - g. Weirs
 - i. Type
 - ii. Invert elevation
 - iii. Top of weir elevation
 - iv. Length
7. Flared End Sections
 - a. Material
 - b. Invert
 - c. Size
 - d. Outlet/Inlet Protection
 - i. Dimensions

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- ii. Tonnage
- 8. BMP
 - a. Wetland
 - i. Topo
 - ii. Outlet structure (refer to Structures requirements listed above)
 - iii. Outlet pipe (refer to Stormwater Pipe requirements listed above)
- 9. Sanitary Sewer Manhole Structures
 - a. Rim/hood elevation
 - b. All pipe invert elevations
 - c. Material
 - d. Construction type (pre-cast, masonry block, or cast-in-place)
 - e. Interior bottom elevation of structure
 - f. Cover (lid/grate) dimensions

The submittal process for the review and approval of Record Drawings is as follows:

- 1. Submittal of Record Drawings
 - a. Submit two (2) copies of either a contractor's "red-lined" mark-ups of approved construction drawings or an electronic submission of approved construction drawings with changes to the above "clouded" based on a contractor's "red-lined" mark-ups to the Engineer of Record.
 - i. Only changes from the approved construction drawings need to be presented
 - ii. The "red-lined" information will have a single line placed through it with the revision information or measurement placed next to it.
 - iii. If an electronic drawing is submitted in place of the contractor's red-line drawings, then a single line will be drawing through the errant information. The correct information will be placed next to the errant information and a "cloud" will surround both.
 - b. Upon receipt of As-Built Drawings, the Engineer of Record shall review the As-Built Drawings to determine and establish if any construction deviations will impact positive storm drainage flow throughout the system or place the system out of compliance with the City of Greenville requirements. The Contractor will be responsible for providing any clarification or additional information as deemed necessary by the Engineer to confirm the construction of the street(s) and storm drainage infrastructure is completed in substantial accordance with the approved plans and specifications.
 - i. If there is not positive drainage throughout the storm drainage system or if the system is not in compliance with the approved construction drawings or the City of Greenville requirements, the engineer and City will work with the Contractor to determine a viable solution(s). The Contractor will need to provide a stormwater system that provides positive drainage.
 - ii. The benchmark(s) and datum used for measurements of the As-Built Drawings shall be conveyed and easily interpreted on the submitted drawings and shall be the same as used for the design of the original approved construction drawings and for construction.

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1. If the referenced benchmark(s) used for design and construction and shown on the approved construction drawings have been compromised, new benchmark(s) must be reestablished to an accuracy on the site from published NGS monuments in accordance with the Standard of Practice for Land Surveyors in North Carolina, N.C.A.C Title 21, Chapter 56, Section 1600, and by either conventional survey methods or Global Positioning System survey methods (21 NCAC 56 1607).
2. Upon approval of the As-Built Drawings, the Engineer of Record shall submit to the City Engineering Division:
 - a. One (1) signed and sealed copy of Record Drawings.
 - b. An electronic copy of the drawing in PDF format with the following certification:
“I, _____, as a duly registered Professional Engineer in the State of North Carolina, hereby certify that construction of the street(s) and storm drainage infrastructure as presented on these Record Drawings has been completed in substantial accordance with the approved plans and specifications and that the information pertaining to said infrastructure provided by _____ and prepared under the supervision of _____ is correct to the best of my knowledge and belief.”
 - c. An electronic drawing in a version of AutoCAD “DWG” format compatible with the City of Greenville’s current system.
 - d. The Engineer’s & Owners Certification Completion forms (Std. details No. C31.01 & C31.02, respectively).

Measurement and Payment

As-Built Drawings will be paid for at the contract lump sum price for the work detailed in this section.

Payment will be made under:

CONSTRUCTION AS-BUILTSLS

SP-19 PAVEMENT REMOVAL AND MILLING LIMITS

The pavement removal and milling limits shown on the plans are intended to cover the extent of impacts associated with the project scope. No payment will be made for pavement removal, replacement or milling outside the shown limits without prior approval from the City. Costs for additional pavement removal deemed to be for Contractor convenience will be borne by the Contractor.

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SP-20 PIPE JOINTS

All rigid pipe shall be installed per NCDOT section 300-6 (A) except that all pipe shall have Type 2 filtration geotextile wrapped around all pipe joints including pipes greater than 12 inches in diameter. Extend geotextile at least 12 inches beyond each side of the joint and provide a minimum 12 inch overlap. Secure geotextile against the outside of the pipe by methods approved by the Engineer.

There will be no separate measurement or payment for joint wrapping, the price of the work will be included in the price for the individual line item.

SP-21 OIL WATER SEPARATORS

DESCRIPTION

Construct oil water separator structures and tie into existing manhole including metal grates, covers, frames, steps, riser, baffles, pipes, cleanouts, bends, and other hardware as shown in the plans and in accordance with-Section 840 of the *NCDOT 2018 Standard Specifications* and this project special provision.

Work covered under this special provision includes construction of oil water separators as shown on the plan sheets, necessary excavation, dewatering, backfill around the oil water separator, foundation conditioning material, geotextile fabric, reinforcing steel, concrete, curing agents, joint fillers, joint sealers, mortar, steps, precast concrete drainage structure units, frame and cover, riser, baffles, pipes, bends, cleanouts, and removal and disposal of existing structures.

MATERIALS

The materials utilized will be in accordance with NCDOT 2018 Standard Specification Section 840.

Materials shall be as shown on the plans or described in Article 840-2 of the NCDOT Standard Specifications.

Foundation – A minimum of 1.5 foot of foundation conditioning material below oil water separators. Foundation for oil water separators shall meet the requirements of Section 414 of the Standard Specifications. In addition, Type VI foundation material shall be encapsulated in filter fabric conforming to Type 4 requirements in Section 1056 of the Standard Specifications. The filter fabric shall be placed perpendicular to flow within the structure. Provide sufficient overhang beyond the excavation to allow a minimum lap of 3 feet when the foundation material is placed, and fabric wrapped on top. Perpendicular sections of fabric shall be continuous. A minimum lap of 2 feet shall be provided between sections of fabric. The cost of this work will be included in the unit cost of the structures, no separate payment will be allowed.

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SUBMITTALS

Technical product data on each product including brand name and manufacturer.

Shop Drawings:

Standard Fabrication: Indicate structure locations, elevations, sections, equipment support, piping sizes, and elevations of penetrations.

Custom Fabrication: Indicate design, construction and installation details, typical reinforcement and additional reinforcement at openings for each custom type, size and configuration.

Product Data: Submit cover, accessories, component construction, features, configuration, dimensions, and joint data.

Fabrication shall not begin until all submittal approvals are received.

CONSTRUCTION METHODS

The construction methods will be in accordance with *NCDOT 2018 Standard Specification* Section 840.

MEASUREMENT

Oil Water Separators will be measured and paid in units of each per structure type of the actual number completed and accepted.

PAYMENT

Oil Water Separators will be paid for on a contract unit of each per structure plus all adjoining piping, apparatuses, and connection to existing manhole. Payment will be full compensation for supplying all materials, labor, and equipment to complete the work in accordance with the plans and this specification.

PAY ITEM

UNIT

Oil Water Separators

EA

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SP-22 DEMOLITION & ABANDONMENT

Description

This item shall consist of all demolition and abandonment activities including removing and disposing of surface debris, designated paving, curbs, slabs, road signs, guardrails, abandoned utilities and structures where indicated, and any other demolition activities not listed here. It will also include abandoning in place structures, storm sewers or utilities as indicated on the drawings as well as protecting existing structures designated to remain. The removal of structures, conduits (including pipes and boxes), curb and gutter, and pavement within the installation trench limits, as detailed within the drawings, shall be incidental to the furnishing and installation of all structures and stormwater conduits. Separate payment shall be made for the removal of structures, conduits, curb and gutter, and pavement identified to be removed within the drawings outside of installation trench limits. Quantities identified within this special provision to be verified by Engineer, Owner, or Authorized Representative.

Execution

1. EXAMINATION
 - A. Administrative Requirements: Verification of existing conditions before starting work.
 - B. Verify existing structures designated to remain is tagged or identified.
 - C. Identify waste area or salvage area for placing removed materials when materials are indicated to remain on site.
2. PREPARATION
 - A. Call local utility line information service indicated on Drawings not less than three working days before performing Work.
 - a. Request underground utilities to be located and marked within and surrounding construction areas.
3. PROTECTION
 - A. Locate, identify, and protect from damage utilities indicated to remain.
 - B. Protect structures designated to remain.
 - C. Protect bench marks and survey control points from damage or displacement.
4. REMOVAL
 - A. Remove designated debris and rock from site.
 - B. Remove designated paving, curbs, and site slabs.
 - C. Remove designated road signs and guardrails.
 - D. Where indicated on Drawings partially remove paving, curbs, and slabs. Neatly saw cut edges at right angle to surface.
 - E. Remove utilities as indicated on the drawings. Indicate removal termination point for underground utilities on Record Documents.
 - F. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.
 - G. Do not burn or bury materials on site unless authorized in writing by authority having jurisdiction.
 - H. Leave site in clean condition.

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Method of Payment

The quantity to be paid for under demolition and abandonment items will be as shown on the bid form (each, linear foot and square yards).

Basis of Payment

The quantity of this item to be paid for will include demolition activities such as site clearing, and loading and removing waste materials from the site, based on the contract unit price shown on the bid form. Only those items shown on the bid sheet shall be paid for directly. All other labor, tool, equipment, and incidentals necessary for the completion of the project shall be considered incidental to the contract bid items. Removal and abandonment of water valves and appurtenances along the lines to be removed or abandoned are considered incidental to this work.

Payment will be made under:

Pay Item	Pay Unit
Removal and Disposal of Existing Stormwater Pipe	LF
Removal and Disposal of Existing Stormwater Structures	EA
Removal and Disposal of Existing Asphalt Pavement	SY
Removal and Disposal of Existing Water Main	LF
Removal and Disposal of Existing Gravity Sewer	LF
Removal and Disposal of Existing Concrete Curb and Gutter	LF

SP-23 FLOWABLE FILL

Description

This work consists of all work necessary to pump flowable fill or approved material in accordance with these provisions, the plans, and as directed.

Materials

Refer to Division 10 of the *2018 Standard Specifications*.

Item	Section
Flowable Fill	1000-6

Construction Methods

Refer to Section 1530 – Abandon or Remove Utilities of the *2018 Standard Specifications*.

Pump flowable fill or approved material into the space scheduled to be filled. The mix shall be pumped in a manner to ensure the identified space is completely filled. The Contractor shall provide a method to plug the ends of the existing pipe in order to contain the flowable fill. An

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abandonment plan shall be submitted to the Engineer for approval no less than thirty (30) days before intended filling of identified spaces.

Measurement and Payment

At locations where flowable fill is called for on the plans and a pay item for flowable fill is included in the contract, *Flowable Fill* will be measured in cubic yards and paid as the actual number of cubic yards that have been satisfactorily placed and accepted. Such price and payment will be full compensation for all work covered by this provision including, but not limited to, the mix design, furnishing, hauling, pumping and containing the flowable fill.

Payment will be made under:

Pay Item

Flowable Fill

Pay Unit

Cubic Yard

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ROADWAY

The *January 2018 North Carolina Department of Transportation Standards and Specifications for Roadways and Structures* (NCDOT Standard Specifications) shall apply on all portions of the project except as modified by this document. Where Special Provisions refer to particular items, materials, procedures, etc., the appropriate section of the Standard Specifications shall apply. The absence of a description or specification for any item shall automatically refer to the appropriate section of the Standard Specifications.

Specific City of Greenville requirements are generally supplemental to the NCDOT Standard Specifications and, when there is a conflict between City of Greenville standards and NCDOT Standard Specifications, the NCDOT Standard Specifications shall govern.

SP-24 DETECTABLE WARNINGS FOR PROPOSED CURB RAMPS

Description

Construct detectable warnings consisting of integrated raised truncated domes on proposed concrete curb ramps in accordance with the *2018 Standard Specifications*, plan details, the requirements of the *28 CFR Part 36 ADA Standards for Accessible Design* and this provision.

Materials

Detectable warning for proposed curb ramps shall consist of integrated raised truncated domes. The description, size and spacing shall conform to Section 848 of the *2018 Standard Specifications*.

Use material for detectable warning systems as shown herein. Material and coating specifications must be stated in the Manufacturers Type 3 Certification and all Detectable Warning systems must be on the NCDOT Approved Products List.

Install detectable warnings created from one of the following materials: precast concrete blocks or bricks, clay paving brick, gray or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile. Only one material type for detectable warning will be permitted per project, unless otherwise approved by the Engineer.

(A) Detectable Warnings shall consist of a base with integrated raised truncated domes, and when constructed of precast concrete they shall conform to the material requirements of Article 848-2 of the *2018 Standard Specifications*.

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(B) Detectable Warnings shall consist of a base with integrated raised truncated domes, and may be comprised of other materials including, but not limited, to clay paving brick, gray iron or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile, which are cast into the concrete of the curb ramps. The material shall have an integral color throughout the thickness of the material. The detectable warning shall include fasteners or anchors for attachment in the concrete and shall be furnished as a system from the manufacturer.

Prior to installation, the Contractor shall submit to the Engineer assembling instructions from the manufacturer for each type of system used in accordance with Article 105-2 of the *2018 Standard Specifications*. The system shall be furnished as a kit containing all consumable materials and consumable tools, required for the application. They shall be capable of being affixed to or anchored in the concrete curb ramp, including green concrete (concrete that has set but not appreciably hardened). The system shall be solvent free and contain no volatile organic compounds (VOC). The static coefficient of friction shall be 0.8 or greater when measured on top of the truncated domes and when measured between the domes in accordance with ASTM C1028 (dry and wet). The system shall be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to degradation by motor fuels, lubricants and antifreeze.

(C) When steel or gray iron or ductile iron casting products are provided, only products that meet the requirements of Subarticle 106-1(B) of the *2018 Standard Specifications* may be used. Submit to the Engineer a Type 6 Certification, catalog cuts and installation procedures at least 30 days prior to installation for all.

Construction Methods

(A) Prior to placing detectable warnings in proposed concrete curb ramps, adjust the existing subgrade to the proper grade and in accordance with Article 848-3 of the *2018 Standard Specifications*.

(B) Install all detectable warning in proposed concrete curb ramps in accordance with the manufacturer's recommendations.

Measurement and Payment

Detectable Warnings installed for construction of proposed curb ramps will not be paid for separately. Such payment will be included in the price bid for *Concrete Curb Ramps*.

SP-25 STREET SIGNS AND MARKERS AND ROUTE MARKERS

Move any existing street signs, markers, and route markers out of the construction limits of the project and install the street signs and markers and route markers so that they will be visible to the traveling public if there is sufficient right of way for these signs and markers outside of the construction limits.

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Near the completion of the project and when so directed by the Engineer, move the signs and markers and install them in their proper location in regard to the finished pavement of the project.

Stockpile any signs or markers that cannot be relocated due to lack of right of way, or any signs and markers that will no longer be applicable after the construction of the project, at locations directed by the Engineer for removal by others.

The Contractor shall be responsible to the owners for any damage to any street signs and markers or route markers during the above described operations.

No direct payment will be made for relocating, reinstalling, and/or stockpiling the street signs and markers and route markers as such work shall be considered incidental to other work being paid for by the various items in the contract.

SP-26 SAWING EXISTING PAVEMENT

Where it is necessary to construct curb or curb and gutter in locations where bituminous pavement and curb and gutter exists, the Contractor will be required to furnish a neat edge along the pavement retained by sawing a neat line approximately two inches deep, with a concrete saw, before breaking the adjacent asphalt pavement and curb and gutter away. There will be no direct payment for the work covered by this provision as it is considered incidental to other items in the contract.

SP-27 TEMPORARY SHORING (as required)

Description

The Contractor shall furnish and install temporary shoring for the installation of pipes and culverts as necessary to stay within the Limits of Disturbance, maintain the stability of adjoining buildings, walls, and existing utilities or other structures endangered by operations and protect employees. At the Contractor's option, use any type of temporary shoring unless noted otherwise in the plans or as directed. The Contractor shall design and construct temporary shoring based on actual elevations and shoring dimensions in accordance with the contract and accepted submittals. Temporary shoring is required when a 2:1 (H:V) slope from the top of an embankment or bottom of an excavation will intersect the existing ground line less than 5 feet from the edge of building, wall, parking lot, or other structures endangered by operations or Limits of Disturbance.

Positive protection includes concrete barrier and temporary guardrail. Provide positive protection for temporary shoring at locations shown in the plans and as directed. Positive protection is required if temporary shoring is located in the clear zone in accordance with the *AASHTO Roadside Design Guide*.

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(A) Cantilever and Braced Shoring

Cantilever shoring consists of steel sheet piles or H-piles with timber lagging. Braced shoring consists of sheet piles or H-piles with timber lagging and bracing such as beams, plates, walers, struts, rakers, etc. Define “piles” as sheet piles or H-piles.

(B) Anchored Shoring

Anchored shoring consists of sheet piles with walers or H-piles with timber lagging anchored with ground or helical anchors. Driven anchors may be accepted at the discretion of the Engineer. A ground anchor consists of a grouted steel bar or multi-strand tendon with an anchorage. A helical anchor consists of a lead section with a central steel shaft and at least one helix steel plate followed by extensions with only central shafts (no helixes) and an anchorage. Anchorages consist of steel bearing plates with washers and hex nuts for bars or steel wedge plates and wedges for strands. Use a prequalified Anchored Wall Contractor to install ground anchors. Define “anchors” as ground, helical or driven anchors.

(C) Temporary MSE Walls

Temporary MSE walls include temporary geosynthetic and wire walls. Define “temporary wall” as a temporary MSE wall. Define “reinforcement” as geotextile, geogrid, welded wire grid or metallic strip reinforcement.

Temporary geosynthetic walls consist of geotextile or geogrid reinforcement wrapped behind welded wire facing. Define “temporary geotextile wall” as a temporary geosynthetic wall with geotextile reinforcement and “temporary geogrid wall” as a temporary geosynthetic wall with geogrid reinforcement.

Temporary wire walls consist of welded wire grid or metallic strip reinforcement connected to welded wire facing. Define “Wire Wall Vendor” as the vendor supplying the temporary wire wall.

(D) Embedment

Define “embedment” for cantilever, braced and anchored shoring as the pile depth below the grade in front of shoring. Define “embedment” for temporary walls as the wall height below the grade in front of walls.

(E) Positive Protection

Define “unanchored or anchored portable concrete barrier” as portable concrete barrier (PCB) that meets Standard Drawing No. 1170.01 of the *2018 Roadway Standard Drawings*. Define “concrete barrier” as unanchored or anchored PCB or an approved equal. Define “temporary guardrail” as temporary steel beam guardrail that meets Standard Drawing No. 862.02 of the *2018 Roadway Standard Drawings*.

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Materials

Refer to the *2018 Standard Specifications*.

Item	Section
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Grout	1003
Portland Cement Concrete	1000
Select Material	1016
Steel Beam Guardrail Materials	862-2
Steel Plates	1072-2
Steel Sheet Piles and H-Piles	1084
Untreated Timber	1082-2
Welded Wire Reinforcement	1070-3
Wire Staples	1060-8(D)

Provide Type 6 material certifications for shoring materials in accordance with Article 106-3 of the *2018 Standard Specifications*. Use Class IV select material (standard size No. ABC) for temporary guardrail. Use neat cement grout for Type 2 grout for ground anchors. Use Class A concrete that meets Article 450-2 of the *2018 Standard Specifications* or Type 1 grout for drilled-in piles. Provide untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging. Provide steel bracing that meets ASTM A36.

(A) Shoring Backfill

Use Class II, Type 1, Class III, Class V or Class VI select material or material that meets AASHTO M 145 for soil classification A-2-4 with a maximum PI of 6 for shoring backfill except do not use A-2-4 soil for backfill around culverts.

(B) Anchors

Store anchor materials on blocking a minimum of 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store anchor materials so materials are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

(1) Ground Anchors

Use high-strength deformed steel bars that meet AASHTO M 275 or seven-wire strands that meet ASTM A886 or Article 1070-5 of the *2018 Standard Specifications*. Splice bars in accordance with Article 1070-9 of the *2018 Standard Specifications*.

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Specifications. Do not splice strands. Use bondbreakers, spacers and centralizers that meet Article 6.3.5 of the *AASHTO LRFD Bridge Construction Specifications*.

(2) Helical Anchors

Use helical anchors with an ICC Evaluation Service, Inc. (ICC-ES) report. Helical anchors without an ICC-ES report may be approved at the discretion of the Engineer. Provide couplers, thread bar adapters and bolts recommended by the Anchor Manufacturer to connect helical anchors together and to piles.

(3) Anchorages

Provide steel plates for bearing plates and steel washers, hex nuts, wedge plates and wedges recommended by the Anchor Manufacturer.

(C) Temporary Walls

(1) Welded Wire Facing

Use welded wire reinforcement for welded wire facing, struts and wires. For temporary wire walls, provide welded wire facing supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. For temporary wire walls with separate reinforcement and facing components, provide connectors (e.g., bars, clamps, plates, etc.) and fasteners (e.g., bolts, nuts, washers, etc.) required by the Wire Wall Vendor.

(2) Geotextiles

Provide Type 2 geotextile for separation and retention geotextiles. Provide Type 5 geotextile for geotextile reinforcement with ultimate tensile strengths in accordance with the accepted submittals.

(3) Geogrid Reinforcement

Handle and store geogrids in accordance with Article 1056-2 of the *2018 Standard Specifications*. Define “machine direction” (MD) and “cross-machine direction” (CD) for geogrids in accordance with ASTM D4439.

Use geogrids with a roll width of at least 4 ft and an “approved” or “approved for provisional use” status code. The list of approved geogrids is available from: connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx

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Provide geogrids for geogrid reinforcement with design strengths in accordance with the accepted submittals. Geogrids are typically approved for ultimate tensile strengths in the MD and CD or short-term design strengths for a 3-year design life in the MD based on material type. Define material type from the website above for shoring backfill as follows:

Material Type	Shoring Backfill
Borrow	A-2-4 Soil
Fine Aggregate	Class II, Type 1 or Class III Select Material
Coarse Aggregate	Class V or VI Select Material

(4) **Welded Wire Grid and Metallic Strip Reinforcement**

Provide welded wire grid and metallic strip reinforcement supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. Use welded wire grid reinforcement (“mesh”, “mats” and “ladders”) that meet Article 1070-3 of the *2018 Standard Specifications* and metallic strip reinforcement (“straps”) that meet ASTM A572 or A1011.

Preconstruction Requirements

(A) **Concrete Barrier**

Define “clear distance” behind concrete barrier as the horizontal distance between the barrier and edge of pavement. The minimum required clear distance for concrete barrier is shown in the plans. At the Contractor’s option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of temporary shoring except for barrier above temporary walls. Concrete barrier with the minimum required clear distance is required above temporary walls.

(B) **Temporary Guardrail**

Define “clear distance” behind temporary guardrail as the horizontal distance between guardrail posts and temporary shoring. At the Contractor’s option or if clear distance for cantilever, braced and anchored shoring is less than 4 ft, attach guardrail to traffic side of shoring as shown in the plans. Place ABC in clear distance and around guardrail posts instead of pavement. Do not use temporary guardrail above temporary walls.

(C) **Temporary Shoring Designs**

Before beginning temporary shoring design, survey existing ground elevations in the vicinity of shoring locations to determine actual design heights (H). Submit 8 copies of working drawings and 3 copies of design calculations and a PDF copy of each for temporary shoring designs in accordance with Article 105-2 of the *2018 Standard Specifications*. Submit working drawings showing plan views, shoring profiles, typical

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sections and details of temporary shoring design and construction sequence. Do not begin shoring construction until a design submittal is accepted.

Have cantilever and braced shoring designed, detailed and sealed by an engineer licensed in the state of North Carolina. Use a prequalified Anchored Wall Design Consultant to design anchored shoring. Provide anchored shoring designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for an Anchored Wall Design Consultant. Include details in anchored shoring working drawings of anchor locations and lock-off loads, unit grout/ground bond strengths for ground anchors or minimum installation torque and torsional strength rating for helical anchors and if necessary, obstructions extending through shoring or interfering with anchors. Include details in the anchored shoring construction sequence of pile and anchor installation, excavation and anchor testing.

Use a prequalified MSE Wall Design Consultant to design temporary walls. Provide temporary wall designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the MSE Wall Design Consultant. Include details in temporary wall working drawings of geotextile and reinforcement types, locations and directions and obstructions extending through walls or interfering with reinforcement.

(1) Soil Parameters

Design temporary shoring for the assumed soil parameters and groundwater elevations shown in the plans. Assume the following soil parameters for shoring backfill:

(a) Unit weight (γ): Reference geotechnical report contained within this Contract.

(b)

Friction Angle (ϕ)	Shoring Backfill
30°	A-2-4 Soil
34°	Class II, Type 1 or Class III Select Material
38°	Class V or VI Select Material

(c) Cohesion (c): Reference geotechnical report contained within this Contract.

(2) Traffic Surcharge

Design temporary shoring for a traffic surcharge of 250 lb/sf if traffic will be above and within H of shoring. This traffic surcharge does not apply to construction traffic. Design temporary shoring for any construction surcharge if construction traffic will be above and within H of shoring. For LRFD shoring designs, apply traffic (live load) surcharge in accordance with Figure C11.5.5-3 of the *AASHTO LRFD Bridge Design Specifications*.

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(3) Cantilever, Braced and Anchored Shoring Designs

Use shoring backfill for fill sections and voids between cantilever, braced and anchored shoring and the critical failure surface. Use concrete or grout for embedded portions of drilled-in H-piles. Do not use drilled-in sheet piles.

Define “top of shoring” for cantilever, braced and anchored shoring as where the grade intersects the back of sheet piles or H-piles and timber lagging. Design cantilever, braced and anchored shoring for a traffic impact load of 2,000 lb/ft applied 18" above top of shoring if concrete barrier is above and next to shoring or temporary guardrail is above and attached to shoring. For anchored shoring designs, apply traffic impact load as horizontal load (P_{HI}) in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications.

Extend cantilever, braced and anchored shoring at least 32" above top of shoring if shoring is designed for traffic impact. Otherwise, extend shoring at least 6" above top of shoring.

Design cantilever, braced and anchored shoring for a maximum deflection of 3" if the horizontal distance to the closest edge of pavement or structure is less than H. Otherwise, design shoring for a maximum deflection of 6". Design cantilever and braced shoring in accordance with the plans and *AASHTO Guide Design Specifications for Bridge Temporary Works*.

Design anchored shoring in accordance with the plans and Article 11.9 of the *AASHTO LRFD Bridge Design Specifications*. Use a resistance factor of 0.80 for tensile resistance of anchors with bars, strands or shafts. Extend the unbonded length for ground anchors and the shallowest helix for helical anchors at least 5 ft behind the critical failure surface. Do not extend anchors beyond right-of-way or easement limits. If existing or future obstructions such as foundations, guardrail posts, pavements, pipes, inlets or utilities will interfere with anchors, maintain a clearance of at least 6" between obstructions and anchors.

(4) Temporary Wall Designs

Use shoring backfill in the reinforced zone of temporary walls. Separation geotextiles are required between shoring backfill and backfill, natural ground or culverts along the sides of the reinforced zone perpendicular to the wall face. For Class V or VI select material in the reinforced zone, separation geotextiles are also required between shoring backfill and backfill or natural ground on top of and at the back of the reinforced zone.

Design temporary walls in accordance with the plans and Article 11.10 of the *AASHTO LRFD Bridge Design Specifications*. Embed temporary walls at least 18" except for walls on structures or rock as determined by the Engineer. Use a uniform reinforcement length throughout the wall height of at least 0.7H or 6 ft, whichever

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is longer. Extend the reinforced zone at least 6" beyond end of reinforcement. Do not locate the reinforced zone outside right-of-way or easement limits.

Use the simplified method for determining maximum reinforcement loads in accordance with the AASHTO LRFD specifications. For geotextile reinforcement, use geotextile properties approved by the Department or default values in accordance with the AASHTO LRFD specifications. For geogrid reinforcement, use approved geogrid properties available from the website shown elsewhere in this provision. If the website does not list a short-term design strength for an approved geogrid, use a short-term design strength equal to the ultimate tensile strength divided by 3.5 for the geogrid reinforcement. Use geosynthetic properties for the direction reinforcement will be installed, a 3-year design life and shoring backfill to be used in the reinforced zone.

Do not use more than 4 different reinforcement strengths for each temporary geosynthetic wall. Design temporary geotextile walls for a reinforcement coverage ratio (R_c) of 1.0 and temporary geogrid walls for an R_c of at least 0.8. For geogrid reinforcement with an R_c of less than 1.0, use a maximum horizontal clearance between geogrids of 3 ft and stagger reinforcement so geogrids are centered over gaps in the reinforcement layer below.

For temporary geosynthetic walls, use "L" shaped welded wire facing with 18" to 24" long legs. Locate geotextile or geogrid reinforcement so reinforcement layers are at the same level as the horizontal legs of welded wire facing. Use vertical reinforcement spacing equal to facing height. Wrap geotextile or geogrid reinforcement behind welded wire facing and extend reinforcement at least 3 ft back behind facing into shoring backfill.

For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing with a connection approved by the Department. For temporary geogrid and wire walls, retain shoring backfill at welded wire facing with retention geotextiles and extend geotextiles at least 3 ft back behind facing into backfill.

(D) Preconstruction Meeting

The Engineer may require a shoring preconstruction meeting to discuss the construction, inspection and testing of the temporary shoring. If required and if this meeting occurs before all shoring submittals have been accepted, additional preconstruction meetings may be required before beginning construction of temporary shoring without accepted submittals. The Engineer of Record, Contractor's Geotechnical Engineer, City Engineer, Contractor and Shoring Contractor Superintendent will attend preconstruction meetings.

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Construction Methods

Control drainage during construction in the vicinity of shoring. Direct run off away from shoring and shoring backfill. Contain and maintain backfill and protect material from erosion.

Install positive protection in accordance with the contract and accepted submittals. Use PCB in accordance with Section 1170 of the *2018 Standard Specifications* and Standard Drawing No. 1170.01 of the *2018 Roadway Standard Drawings*. Use temporary guardrail in accordance with Section 862 of the *2018 Standard Specifications* and Standard Drawing No. 862.01, 862.02 and 862.03 of the *2018 Roadway Standard Drawings*.

(A) Tolerances

Construct shoring with the following tolerances:

- (1) Horizontal wires of welded wire facing are level in all directions,
- (2) Shoring location is within 6" of horizontal and vertical alignment shown in the accepted submittals, and
- (3) Shoring plumbness (batter) is not negative and within 2° of vertical.

(B) Cantilever, Braced and Anchored Shoring Installation

If overexcavation behind cantilever, braced or anchored shoring is shown in the accepted submittals, excavate before installing piles. Otherwise, install piles before excavating for shoring. Install cantilever, braced or anchored shoring in accordance with the construction sequence shown in the accepted submittals. Remove piles and if applicable, timber lagging when shoring is no longer needed.

(1) Pile Installation

Install piles with the minimum required embedment and extension in accordance with Subarticles 450-3(D) and 450-3(E) of the *2018 Standard Specifications* except that a pile driving equipment data form is not required. Piles may be installed with a vibratory hammer as approved by the Engineer.

Do not splice sheet piles. Use pile excavation to install drilled-in H-piles. After filling holes with concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout at least 7 days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the minimum required embedment. When this occurs, a revised design submittal may be required.

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(2) Excavation

Excavate in front of piles from the top down in accordance with the accepted submittals. For H-piles with timber lagging and braced and anchored shoring, excavate in staged horizontal lifts with a maximum height of 5 ft. Remove flowable fill and material in between H-piles as needed to install timber lagging. Position lagging with at least 3" of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the next lift until timber lagging for the current lift is installed and if applicable, bracing and anchors for the current lift are accepted. Backfill behind cantilever, braced or anchored shoring with shoring backfill.

(3) Anchor Installation

If applicable, install foundations located behind anchored shoring before installing anchors. Fabricate and install ground anchors in accordance with the accepted submittals, Articles 6.4 and 6.5 of the *AASHTO LRFD Bridge Construction Specifications* and the following unless otherwise approved:

- (a) Materials in accordance with this provision are required instead of materials conforming to Articles 6.4 and 6.5.3 of the AASHTO LRFD Specifications,
- (b) Encapsulation-protected ground anchors in accordance with Article 6.4.1.2 of the AASHTO LRFD specifications are not required, and
- (c) Corrosion protection for unbonded lengths of ground anchors and anchorage covers are not required.
- (d) Measure grout temperature, density and flow during grouting with at least the same frequency grout cubes are made for compressive strength. Perform density and flow field tests in the presence of the Engineer in accordance with American National Standards Institute/American Petroleum Institute Recommended Practice 13B-1 (Section 4, Mud Balance) and ASTM C939 (Flow Cone), respectively.

Install helical anchors in accordance with the accepted submittals and Anchor Manufacturer's instructions. Measure torque during installation and do not exceed the torsional strength rating of the helical anchor. Attain the minimum required installation torque and penetration before terminating anchor installation. When replacing a helical anchor, embed last helix of the replacement anchor at least 3 helix plate diameters past the location of the first helix of the previous anchor.

(4) Anchor Testing

Proof test and lock-off anchors in accordance with the accepted submittals and Article 6.5.5 of the *AASHTO LRFD Bridge Construction Specifications* except for

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the acceptance criteria in Article 6.5.5.5. For the AASHTO LRFD specifications, “ground anchor” refers to a ground or helical anchor and “tendon” refers to a bar, strand or shaft.

(a) Anchor Acceptance

Anchor acceptance is based in part on the following criteria.

- (i) For ground and helical anchors, total movement is less than 0.04" between the 1 and 10 minute readings or less than 0.08" between the 6 and 60 minute readings.
- (ii) For ground anchors, total movement at maximum test load exceeds 80% of the theoretical elastic elongation of the unbonded length.

(b) Anchor Test Results

Submit 2 copies of anchor test records including movement versus load plots for each load increment within 24 hours of completing each row of anchors. The Engineer will review the test records to determine if the anchors are acceptable.

If the Engineer determines an anchor is unacceptable, revise the anchor design or installation methods. Submit a revised anchored shoring design for acceptance and provide an acceptable anchor with the revised design or installation methods. If required, replace the anchor or provide additional anchors with the revised design or installation methods.

(C) Temporary Wall Installation

Excavate as necessary for temporary walls in accordance with the plans and accepted submittals. If applicable, install foundations located in the reinforced zone before placing shoring backfill or reinforcement unless otherwise approved. Notify the Engineer when foundation excavation is complete. Do not place shoring backfill or reinforcement until excavation dimensions and foundation material are approved.

Erect welded wire facing so the wall position is as shown in the plans and accepted submittals. Set welded wire facing adjacent to each other in the horizontal and vertical direction to completely cover the wall face with facing. Stagger welded wire facing to create a running bond by centering facing over joints in the row below.

Wrap geotextile reinforcement and retention geotextiles behind welded wire facing as shown in the plans and accepted submittals and cover geotextiles with at least 3" of shoring backfill. Overlap adjacent geotextile reinforcement and retention and separation geotextiles at least 18" with seams oriented perpendicular to the wall face. Hold geotextiles in place with wire staples or anchor pins as needed.

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Place reinforcement within 3" of locations shown in the plans and accepted submittals and in slight tension free of kinks, folds, wrinkles or creases. Install reinforcement with the direction shown in the plans and accepted submittals. For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing as shown in the accepted submittals. Do not splice or overlap reinforcement so seams are parallel to the wall face. Contact the Engineer when unanticipated existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with reinforcement.

Place shoring backfill in the reinforced zone in 8" to 10" thick lifts. Compact A-2-4 soil and Class II, Type 1 and Class III select material in accordance with Subarticle 235-3(C) of the *2018 Standard Specifications*. Use only hand operated compaction equipment to compact backfill within 3 ft of welded wire facing. At a distance greater than 3 ft, compact shoring backfill with at least 4 passes of an 8 ton to 10 ton vibratory roller in a direction parallel to the wall face. Smooth wheeled or rubber tired rollers are also acceptable for compacting backfill. Do not use sheepsfoot, grid rollers or other types of compaction equipment with feet. Do not displace or damage reinforcement when placing and compacting shoring backfill. End dumping directly on geotextile or geogrid reinforcement is not permitted. Do not operate heavy equipment on reinforcement until it is covered with at least 8" of shoring backfill. Replace any damaged reinforcement to the satisfaction of the Engineer.

Backfill for temporary walls outside the reinforced zone in accordance with Article 410-8 of the *2018 Standard Specifications*. Bench temporary walls into the sides of excavations where applicable. For temporary geosynthetic walls with top of wall within 5 ft of finished grade, remove top facing and incorporate top reinforcement layer into fill when placing fill in front of wall. Temporary walls remain in place permanently unless otherwise required.

Measurement and Payment

There will be no separate payment for *Temporary Shoring (as required)* and all associated costs will be considered incidental to the cost of the pipe and/or underground structures.

SP-28 STORMWATER PUMP AROUND/BYPASS PUMPING

Description

Dewatering shall include all work necessary to prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Submittals

The contractor will be required to submit a Stormwater Pump Around/Bypass Pumping Plan, designed by a North Carolina professional engineer, and any necessary permits to be reviewed in compliance with the plans and approved by the City Engineer or authorized agent. The sealed

SPECIAL PROVISIONS

Stormwater Pump Around/Bypass Pumping Plan shall detail the approach for capture, control and discharge of surface and groundwater resulting from dewatering (approval of the plan by the Engineer shall not alleviate the contractor's responsibilities for the dewatering system). The sealed Stormwater Pump Around/Bypass Pumping Plan shall, at a minimum, follow this specification.

During construction, the contractor shall be required to submit to the on-site inspector or authorized agent a weekly inspection report, prepared and completed by the bypass system design engineer, documenting that the system is properly installed, functioning and is providing a dewatered condition at the bottom of the trench excavation per the sealed Stormwater Pump Around/Bypass Pumping Plan to construct all items in the “dry.”

Methods

- a) Water in trenches: When ground water is encountered, the Contractor shall remove the water that accumulates in the trenches or pits, which would affect the construction of the lines or their appurtenances, by pumping, bailing, well- pointing, or other approved dewatering method and shall perform all work necessary to keep the trenches or pits entirely clear from water while bedding is being placed, the pipe (or culvert) is being laid, masonry units are being placed, and structures are either being set or constructed. All water removed from the trench shall be conveyed in a proper manner to a suitable point of discharge and shall comply with applicable erosion and sediment control laws. Pipe/culvert laying and pipe jointing shall be made in the “dry”
- b) No pipe shall be constructed in water and water shall not be allowed to drain through the pipe. The open end of the pipe shall be kept closed with a tight fitting plug to prevent washing of any foreign matter into the line.
- c) No structure shall be constructed in water and water shall not be allowed to flow over or rise upon any concrete masonry structure until the work has been accepted.
- d) The Contractor shall dispose of water from the trenches in such a manner to cause no injury to public health, public or private property, work completed or in progress, street surfaces, or which may cause any interference with the use of the streets. Water, if odorless and stable, may be discharged into an existing storm drain, channel, or street gutter in a manner approved by the City Engineer. Unless otherwise approved by the City Engineer, a means shall be provided for desilting (filtering) the water before discharge. Under no circumstances shall water be discharged to the sanitary sewer.
- e) Prevent surface water from ponding on prepared subgrades and from flooding project site and the surrounding area. Reroute surface water runoff away from or around excavated areas.
- f) Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
- g) Install a dewatering system to keep subgrades dry and convey ground water away from excavations. The cost of shoring, sheeting, well pointing, gravel bedding and other dewatering devices shall be included in the unit price of the pipe and structure. Maintain until dewatering is no longer required.

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- h) Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation. Include cost of de-watering in proposal for water, sewer, or storm drainage lines. No additional compensation for this item is permitted.
- i) Where underground streams or springs are encountered, provide temporary drainage, well pointing, or bailing. Notify City Engineer or duly authorized agent of such conditions.
- j) Backfilling shall not take place when the trench contains water in an amount to create soupy conditions.

Measurement and Payment:

No separate payment will be made for this work, and all associated costs will be considered incidental to the cost of the pipe and/or underground structures.

SP-29 # 57 STONE

Description

The work covered by this section consists of furnishing, stockpiling, placing and maintaining an approved stone to be used at the locations designated in the contract and as directed by the Engineer.

Refer to *Stormwater Drainage Structures* specification for the stone bedding requirements under stormwater drainage structures.

Materials

Refer to the *2018 Standard Specifications*.

Item	Section
# 57 Stone	1005

Measurement and Payment

The quantity of No. 57 stone to be paid (undercut bedding) will be paid for by the length, width, and depth of any additional stone exceeding the incidental 1.5 feet identified within the project Special Provisions and Contract Documents.

The quantity of No. 57 stone to be paid (miscellaneous) will be paid for by the length, width, and depth of any stone required for the restoration of existing conditions as directed by the Engineer.

Payment will be at the contract unit price for:

Pay Item	Pay Unit
# 57 Stone, Undercut Bedding	CY
# 57 Stone, Miscellaneous	CY

SPECIAL PROVISIONS

PROJECT SPECIAL PROVISIONS

TRAFFIC CONTROL

SP-30 TRAFFIC CONTROL

DESCRIPTION

Protection for Construction Staking: The Contractor is responsible for providing, placing, maintaining and removing upon completion, all traffic control devices necessary for the protection of survey crews performing construction staking requested by the Contractor for construction of this project when any offset, reference points, benchmark or any other control point is within the travel lane of any roadway, drive, parking lot or other area where vehicles could endanger or obstruct the survey crew.

Beginning Work and Street Closings: The Contractor is responsible for notifying Gentry Coward (252-329-4050) of questions regarding Traffic Control procedures and planning.

The Contractor shall install advance warning signs for the Project. These signs shall be in place for one week before construction activity begins. The Contractor shall begin construction activity on a street on the scheduled date for the closing of the travel lane.

During daily construction work hours, the Contractor will maintain at least one lane of traffic. During periods of construction inactivity, all lanes of traffic will be open unless otherwise shown on the plans or noted in the specifications.

All traffic control devices and procedures shall conform to the requirements of the current edition of the Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices* (MUTCD), the current edition of the North Carolina Department of Transportation (NCDOT) Supplement to the *Manual on Uniform Traffic Control Devices for Streets and Highways*, the NCDOT Roadway Standard Drawings and the current edition of the NCDOT Standard Specifications for Roads and Structures.

The Contractor shall maintain the traffic control as described herein unless the Contractor submits an alternate traffic control plan to the Engineer, and it is approved by the Engineer. The Engineer may direct the Contractor to modify the traffic control if, in the Engineer's opinion, traffic is not moving safely or efficiently.

Traffic Control Phasing for this project shall be in accordance with the Traffic Control Plans and details. If these diagrams are not typical for field conditions, the diagrams may be combined or altered upon approval of the Engineer. The standards and diagrams are the minimum required. Additional signs, cones, drums, barricades and warning devices may be used, but at no time will less than what is specified on the plans, in the standards, and on diagrams be acceptable.

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Traffic Control Devices: The Contractor shall furnish, install, operate, relocate, maintain and remove all temporary traffic control devices necessary for controlling traffic in accordance with the plans and specifications. The Contractor shall notify City of Greenville Traffic Engineer regarding conflicting permanent signs. All construction signs and barricades shall remain in place until the appropriate permanent signs and pavement markings are installed.

Traffic Signals: City of Greenville will furnish, erect, operate, maintain, relocate and remove all traffic signal equipment on the Project as necessary in accordance with the Project plans and specifications. The Contractor shall notify the Traffic Engineer at least 30 days prior to the installation, relocation or removal of traffic signal equipment on the Project. The Contractor shall not disturb any traffic signal equipment unless otherwise noted on the traffic control plans or directed to do so by the Engineer.

SUBMITTALS

Contractor shall submit all traffic control plans and phasing required to complete the project for Engineer and City approval through the shop drawing submittal process.

MEASUREMENT

There will be no separate measurement made for Traffic Control.

PAYMENT

Traffic Control will be paid at the lump sum price for “Traffic Control”. This payment will be full compensation for all elements of work required to complete the Project as specified.

PAY ITEM	UNIT
Traffic Control	LS

SP-31 COORDINATION OF EXISTING LIGHTING WORK

Maintain operation of the existing lighting systems until such time that it becomes in conflict with the actual construction work, or it becomes a hazard to traffic as determined by the Engineer.

Use care in working around the lights and circuitry and phase operations so that the disruption of existing lighting systems will be minimized. Make repairs or replacements in conformance with the contract. Should the Contractor fail to make such repairs within the time allowed, the Department will cause the necessary repairs to be made by others. The costs of such repairs will be deducted from any monies due the Contractor on the next subsequent monthly or final payment.

SPECIAL PROVISIONS

SP-32 TEMPORARY SECURITY CHAIN LINK FENCE

Description

Furnish and erect temporary security chain fence with locked gates in conformity with this specification. The temporary security chain fence shall be installed around active work zones, closed roadways or construction staging areas. The fence shall be a minimum of 6' tall to promote safety, deter vandalism and restrict unauthorized personnel from active construction areas. The Contractor shall purchase/rent enough temporary security chain fence to enclose the largest construction phase of the project. The Contractor shall relocate the temporary security chain link fence as the project progresses. The Contractor must provide documentation and justification if a larger quantity of temporary security chain link fence is required to work on multiple phase of the project at the same time. The Contractor should factor this into their schedule and cost.

Materials

Materials shall include any material necessary to erect, disassemble, relocated and re-erect temporary mobile fence. The fence shall be fastened such that only authorized personnel can relocate the fence and the temporary fence will restrict unauthorized personnel. The Contractor may select the materials he deems necessary to complete the work in accordance with this specification. The materials shall be subject to the approval of the Engineer.

Construction Methods

The temporary security chain fence shall be erected adjacent to the open trenches that must be left open overnight or as directed by Engineer. In locations where temporary mobile fence crosses pedestrian walkways pedestrian guidance signs shall be attached to fence to direct pedestrians to alternative routes. At the end of each workday the temporary fence needs to be secured and locked.

Measurement and Payment

Temporary 6' Tall Chain Link Barrier Fence will be measured and paid as the actual number of linear feet of temporary panels installed in place and accepted. Such payment will be full compensation including but not limited to furnishing and installing fence, stands, clamps, stabilization weights, with necessary posts and post bracing, staples, tie wires, warning signs, tools, equipment and incidentals necessary to complete this work.

Payment will be made under:

Pay Item

Temporary 6' Tall Chain Link Barrier Fence

Pay Unit

Linear Foot

SPECIAL PROVISIONS

PROJECT SPECIAL PROVISIONS

UTILITIES

SP-33 UTILITY COORDINATION AND DRY UTILITY RELOCATIONS

General:

The City has contacted and notified all involved utility owners of the effect of this Project on their respective utility. Construction plans and anticipated construction schedules have been provided to the utility owners. Each utility owner will be requested to attend the preconstruction conference to discuss potential conflicts and their schedule for relocation where required. All utilities are shown on the plans for the best available information. Some utility relocations may occur prior to commencement of the project; however, a majority will be done concurrent with project construction.

The Contractor's attention is directed to Article 105.8 of the Standard Specifications.

The following utility companies may have facilities that may be in conflict with the construction of the project.

Greenville Utilities Commission (GUC) Electric
GUC Water Resources
GUC Gas
City of Greenville Fiber

No additional compensation shall be allowed for delays or inconvenience sustained by the Contractor due to utility relocation or adjustments. No additional payment will be made for re-mobilization required by the utility's failure to relocate a utility at the request of the Contractor.

Where changes to utility facilities are to be made solely for the convenience of the Contractor, it shall be the Contractor's responsibility to arrange for such changes, and the Contractor shall bear all costs of such changes.

Some utility relocations may occur prior to commencement of the project; however, a majority will be done concurrent with project construction. In addition, the Contractor shall notify the utility owners 3-weeks in advance of construction that will impact their utilities.

The Contractor will be required to grade around utility poles and guy wires which may be left in place within the construction limits of the project and where the poles remain in their present position on the outer edge of fills, to place such fills without disturbing the poles with grading equipment.

SPECIAL PROVISIONS

The Contractor shall adhere to the provisions of *1985 Underground Damage Prevention Act, North Carolina General Statute 887, Chapter 785, Senate Bill 168, Article 3*. To assist the Contractor and utility owners in meeting the requirements of this law, there is a "one call system" called "NC One-call". Most major utilities with underground facilities in the State subscribe to this service. For calls originating within North Carolina, NC One-Call's telephone number is 1-800-632-4949. For calls originating outside North Carolina, the number is (919) 855-5760. The Contractor shall, at their own expense, locate all existing utilities and other structures ahead of construction. The Contractor shall make every effort to avoid damage or disruption of services during the work to be performed. No additional compensation shall be allowed for delays or inconveniences sustained by the Contractor due to utility relocation or adjustments. Contractor is to notify utility companies and the City of any known conflicts in writing before he begins work in a certain area. GUC inspector will be required on site for water and sewer tie-ins and visual testing. The Engineer, Owner, or Authorized Representative will be required on site for gas tie-ins and pressure testing. The Contractor shall be responsible for providing a North Carolina licensed plumber (with gas experience) for all associated gas piping activities.

PAYMENT

Payment will be made under:

UTILITY COORDINATION AND DRY UTILITY RELOCATION COSTSLS

SP-34 UTILITY CONNECTIONS

Make connections between existing and proposed utilities at times most convenient to the public, without endangering the utility service, and in accordance with the owner's requirements. Make connections on weekends, at night, and on holidays if necessary. Should the position of any pole, pipe, conduit, or other structure require removal or adjustment, the Engineer will coordinate the change with the owner of the obstructions or a representative of the owner. There will be no direct payment for the work covered by this provision. Payment at the contract unit prices for the various items in the contract will be full compensation for all work covered by this provision.

SP-35 INTERRUPTION OF WATER SERVICE

The Contractor will be required to have all materials and equipment on the job site seventy-two (72) hours prior to any planned water service interruption. Existing water mains may be taken out of service for a maximum of 8 hours for each relocation, abandonment and/or re-connection unless otherwise directed by the Engineer. Coordination with the GUC is required to cut and plug the line at various locations shown on the plans. The Contractor will provide adequate work force during this time to complete the required connection and refill and return the existing water main to service. The Greenville Fire-Rescue shall be notified of any interruptions of water mains 72 hours prior to interruption.

SPECIAL PROVISIONS

The Contractor will be required to dispose of any water from the isolated main and to dispose of air during the filling operation. The Contractor shall not operate any valves on the existing mains unless as directed by the Engineer. The GUC will not be responsible for delays, rescheduling, etc., resulting from incomplete isolation of the mains.

The GUC Inspector, in conjunction with the contractor, will be responsible for notifications of all customers affected by the interruption of water, sewer, or power service. Service interruptions shall be scheduled by the GUC at a time most convenient to the public. Work may be required at night, weekends and/or holidays, as determined by GUC and the City. Customers shall be notified at least 72 hours (not including weekends/holidays) prior to any interruption of service.

There will be no direct payment for the work covered by this provision. Payment at the contract unit prices for the various items in the contract will be full compensation for all work covered by this provision.

SPECIAL PROVISIONS

PROJECT SPECIAL PROVISIONS

WATER AND SANITARY SEWER PAY ITEM DESCRIPTIONS

All water and sanitary sewer construction shall be performed in accordance with GUC's Manual for the Design and Construction of Water and Wastewater System Extension. **The Contractor shall provide survey grade GPS coordinates of all newly installed water main fittings and valves and sewer manholes and cleanouts.**

All materials shall be new, in good condition, and free from defects.

Any work, for which there is no clearly described water or sewer pay items, but required by the plans and specifications, shall have their cost included with items below.

Some of the items below are provisional and shall be used only when directed by the Engineer. They serve the purpose of allowing the Engineer to make improvements to existing systems encountered during construction.

Payment will be made according to the unit price bid in the Proposal.

The Pay Item Descriptions shown below are supplemented by the GUC Design Manual. If conflicts occur with the wording or detail drawings of the GUC Design Manual and the Plans or this Project Manual, then the Project Manual shall prevail. If the Contractor and the Engineer cannot agree to the intent of the above-mentioned documents, then the solution that best serves GUC and the needs of the City shall control.

The items below shall include the cost of the following:

- a) For providing survey grade GPS coordinates for all newly installed water main and fittings and valves and sewer manholes and cleanouts.
- b) For all special scheduling necessary to complete this project in an orderly manner, as dictated by right-of-way acquisition and/or encroachment issuance.
- c) For all necessary and/or required fittings, bends, taps, plugs, blow-offs, reducers and all other appurtenances (valve boxes with concrete pads, etc.) to properly install and completely test the pipe.
- d) For furnishing, placing, and compacting suitable backfill materials as required.
- e) For all erosion control measures for which there is no separate pay item.
- f) For correcting any damage which may occur to the road shoulders when there is no separate pay item.
- g) For restoring the site to a condition equal to or better than original conditions.
- h) For compliance with all applicable OSHA regulations.
- i) For traffic control measures for which there is no separate pay item.
- j) For disinfection of the water main and disposal of the residual chlorinated water.
- k) For permanent pavement repairs when such repairs are not included in the roadway/stormwater improvement.
- l) For installing 3-inch wide metallic detectable tape as required by GUC Design Manual.

SPECIAL PROVISIONS

a) Tracer Wire

1. All pressure mains shall be provided tracing wire and test ports in such a manner as to be able to properly trace all mains without loss or deterioration of signal or without the transmitted signal migrating off the trace wire.
2. Tracer wire shall be copperhead® steel core copper wire #12 AWG with high density polyethylene coating or equal. It shall be adequately secured or fastened to the pipe in the 3 O-Clock position.
3. The tracer wire shall be securely bonded together at all wire joints with an approved industrial crimp connector to provide electrical continuity. It shall be accessible at all tracer wire test ports.
4. Test ports shall be located adjacent to all valves, branches and ties back into the existing system as shown symbolically on the Drawings. The test port shall consist of a standard valve box, shall be H-20 traffic load rated flush with grade in non-paved areas and flush with final asphalt or concrete pavement elevation. The valve box shall be equipped with a lid stamped "TS". At each test port, a loop of wire shall be brought up and looped inside the box. The loop of wire inside the box shall be a minimum of three feet.
5. Contractor shall perform a continuity test on all tracer wire in the presence of the Owner or Owner's representative. If the tracer wire is found to be not continuous after testing, Contractor shall repair or replace the failed segment of wire at his own expense.

SPU-01, 6-INCH DIAMETER RESTRAINED JOINT DUCTILE IRON WATER SERVICES

DESCRIPTION

The unit price bid in the Proposal shall include the cost of all materials, equipment, labor and all else required to install a ductile iron water main, thickness class 50 and backfill trench complete, in accordance with plans, specifications and GUC Manual or as directed by the Engineer.

This item shall also include but not be limited to the cost of the following:

- a. For all temporary restrained joint fittings, valves, valve boxes, piping, blow-offs, polyethylene Encasement and any other appurtenances required to properly install and test the pipe.
- b. For bedding as described in the GUC Design Manual.
- c. For additional construction layout and surveying required for the water main installation.
- d. For keeping the pipeline clean and free of debris.
- e. For abandonment of the existing water system in accordance with the plans and specifications, or as directed by the Engineer. Existing Water Mains to be abandoned shall have their disconnected ends sealed with an approved water tight plug.
- f. Sheet piling and Shoring, dewatering, and compaction.
- g. Tracer Wire, Test Ports, valve boxes with lids stamped with "TS"

SPECIAL PROVISIONS

MEASUREMENT

The quantity of water main measured will be paid for according to the actual number of linear feet installed and accepted.

PAYMENT

The quantity of water main measured as provided above will be paid for at the contract unit price per linear foot for “6-inch Diameter Restrained Joint Ductile Iron Water Main”.

Payment will be made under:

6-INCH DIAMETER RESTRAINED JOINT DUCTILE IRON WATER SERVICES.....LF

SPU-02, DUCTILE IRON FITTINGS

DESCRIPTION

This item includes furnishing all materials, equipment, and labor required to install Restrained Joint Ductile Iron fittings as required by field conditions but not indicated on the Plans, and also includes the following items:

- (a) For all special scheduling necessary to complete this project in an orderly manner, as dictated by right-of-way acquisition and/or encroachment issuance.
- (b) For all necessary and/or required fittings, bends, taps, plugs, couplings, blow-offs, reducers and all other appurtenances to properly install and completely test the pipe.
- (c) For furnishing, placing and compacting suitable backfill materials as required.
- (d) For all erosion control measures for which there is no separate pay item.
- (e) For correcting any damage which may occur to the road shoulders when there is no separate pay item.
- (f) For restoring the site to a condition equal to or better than original conditions.
- (g) For compliance with all applicable OSHA regulations.
- (h) For traffic control measures for which there is no separate pay item.
- (i) For disinfection of the water main and disposal of the residual chlorinated water.
- (j) For permanent pavement repairs when such repairs are not included in the roadway/stormwater improvement.

PAYMENT

Payment will be based on the AWWA weights for compact fittings of Additional Ductile Iron Fittings, including glands, and will also include an adjustment (deduction) for fittings shown on the plans and not installed.

DUCTILE IRON FITTINGSLBS

SPECIAL PROVISIONS

SPU-03, DUCTILE IRON GRAVITY SEWER

DESCRIPTION

The unit price bid in the Proposal shall include the cost of all materials, equipment, labor and all else required to install ductile iron pipe, thickness class 50, epoxy lined, and backfill trench complete, in accordance with plans, specifications and GUC Manual or as directed by the Engineer.

This item shall also include but not be limited to the cost of the following:

- a) For all temporary restrained joint fittings, valves, valve boxes, piping, blow-offs, and any other appurtenances required to properly install and test the pipe.
- b) For bedding as described in the GUC Design Manual.
- c) For additional construction layout and surveying required for the sanitary sewer installation.
- d) For keeping the pipeline clean and free of debris.
- e) Sheeting and Shoring, dewatering, and compaction.

MEASUREMENT

The quantity of sewer main measured will be paid for according to the actual number of linear feet installed and accepted.

PAYMENT

The quantity of sewer main measured, as provided above, will be paid for at the contract unit price per linear foot for Ductile Iron Gravity Sewer.

Payment will be made under:

4-INCH DIAMETER DUCTILE IRON GRAVITY SEWER	LF
6-INCH DIAMETER DUCTILE IRON GRAVITY SEWER	LF
10-INCH DIAMETER DUCTILE IRON GRAVITY SEWER	LF

SPU-04, STEEL ENCASUREMENT WITH RESTRAINT JOINT DUCTILE IRON

DESCRIPTION

This item includes furnishing all materials, equipment, and labor required to install and test steel casings, as specified and as shown on the Plans and Standard Details including applicable items in the Sanitary Sewer Main Installation pay items, restoration, pipe support spacers, endcaps of the annular space between the casing and carrier pipes, and ductile iron carrier pipe. Pilot Bore may be required for the 36-inch Steel Encasement via Bore and Jack Method in order to achieve grade.

Steel casings shall be of leak proof construction and shall conform to the requirements of ASTM ASA (ASTM A139 Grade "B") and shall be protected inside and outside by a black bituminous

SPECIAL PROVISIONS

coating a minimum of 5 mils thick. Steel casing pipe shall have minimum yield strength of 35,000 psi, shall be equipped with grout holes, and shall be designed to withstand H-20 traffic loading.

Steel casing walls shall have a minimum thickness as follows:

Casing Pipe Inside Diameter (Inches)	Casing Pipe Wall Thickness (Inches)
4 to 12-3/4	0.188
14	0.219
16 to 18	0.250
20	0.281
32	0.438

MEASUREMENT

The quantity of steel encasement measured will be paid for according to the actual number of linear feet installed and accepted.

PAYMENT

The quantity of steel encasement, measured as provided above, will be paid for at the contract unit price per linear foot.

Payment will be made under:

10-INCH X 0.188-INCH STEEL ENCASEMENT W/ 4-INCH RESTRAINT JOINT DUCTILE IRON.....	LF
12-INCH X 0.188-INCH STEEL ENCASEMENT W/ 6-INCH RESTRAINT JOINT DUCTILE IRON.....	LF
24-INCH X 0.281-INCH STEEL ENCASEMENT W/ 10-INCH RESTRAINT JOINT DUCTILE IRON.....	LF

SPECIAL PROVISIONS

SPU-05, CONCRETE ENCASEMENT

DESCRIPTION

This item includes all labor, material, tools and equipment to install concrete encasement as shown on the Plans and in the Proposal or as directed by the GUC Engineer.

MEASUREMENT

Concrete Encasement will be measured on a contract unit per linear foot basis upon completion and acceptance by the Engineer.

PAYMENT

Payment for “Concrete Encasement” installed in accordance with the plans and provisions will be paid for per linear foot installed. This price and payment will be full compensation for sheeting, bracing, excavation, compaction, dewatering, backfilling, materials, equipment, and labor to install concrete encasement at critical crossings and other locations for 4 inch through 12 inch pipes as shown on Drawings.

Payment will be made under:

CONCRETE ENCASEMENT.....LF

SPU-06, CONNECTION OF PROPOSED GRAVITY SEWER TO EXISTING SEWER

DESCRIPTION

This item includes all labor, material, tools and equipment to connect proposed sewer to existing sewer as shown on the Plans or as directed by the GUC Engineer.

MEASUREMENT

Each proposed gravity sewer connected to existing sewer will be measured on a contract unit per each, by size, and material basis upon completion and acceptance by the Engineer.

PAYMENT

Payment for “Connection of Proposed Gravity Sewer to Existing Gravity Sewer” installed in accordance with the plans and provisions will be paid for per each connection. This price and payment will be full compensation for labor, materials, tool and equipment to install neoprene or a watertight flexible coupling and miscellaneous hardware, sheeting, bracing, excavation, backfilling, compaction and all other items to connect proposed sewer to existing sewer.

SPECIAL PROVISIONS

Payment will be made under:

CONNECTION OF PROPOSED 4-INCH DIP GRAVITY SEWER TO EXISTING W/ FERNCO COUPLING.....	EA
CONNECTION OF PROPOSED 6-INCH DIP GRAVITY SEWER TO EXISTING W/ FERNCO COUPLING.....	EA
CONNECTION OF PROPOSED 10-INCH DIP GRAVITY SEWER TO EXISTING W/ FERNCO COUPLING.....	EA

SPU-07, BYPASS SEWER PUMPING

DESCRIPTION

1. Under this item the Contractor is required to design and furnish all materials, labor, equipment, power, fuel, fuel storage, maintenance, etc. to implement a temporary pumping system for the purpose of diverting the existing flow around the work area as required to construct the project. The contractor is also required to physically monitor the bypass pump operations continuously regardless of redundancy and reliability features that are stipulated for the pumps and controls herein.
2. The design, installation, and operation of the temporary pumping system shall be the Contractor's responsibility throughout the duration of the project. The Contractor shall employ the services of a vendor who can demonstrate to the Engineer that he specializes in the design and operation of temporary bypass pumping systems. The vendor shall provide at least five (5) references of projects of a similar size and complexity as this project performed by his firm within the past three (3) years. All components of the temporary bypass pumping system shall be provided to the Contractor by a single vendor.
3. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction. Contractor shall be responsible for any fines imposed by local, state, and/or federal agencies for failure to maintain flows or contain spills and/or overflows.
4. The Contractor must coordinate bypass operations with GUC emergency bypass operations during wet weather so as not to cause an upstream overflow or basement backups. Contractor is responsible for controlling flows to avoid downstream overflows.
5. Contractor shall take all precautions necessary to prohibit any wastewater from contacting the ground, flowing into any watercourse, surcharging any manhole or damaging any property.
6. The Contractor shall implement best management practices to prevent and minimize erosion and resultant sedimentation during all bypass pumping activities in accordance with Erosion Control.
7. Contractor's Bid shall be based on providing all bypass pumping operations as required to complete the project.

SPECIAL PROVISIONS

8. Bypass pumping system shall be capable of pumping the peak wet weather flow of the existing system with 100% redundancy. Peak wet weather flow shall be considered the maximum pipe capacity flow, as calculated using the Manning's equation.
9. Contractor may submit a plan for approval that would allow connection of existing system to new system during non-work hours. Such plan shall ensure a water-tight system. Any clearing of new system from intermittent use before its final acceptance shall be the Contractor's sole responsibility.
10. Contractor shall be responsible for maintaining the interceptor in service without wastewater spills during the entirety of the construction period.

DEFINITIONS

- A. "Interruption in operations" is defined as any activity that will result in a change in the current method of operation. Contractor shall request such "interruption of operations" from the Owner in writing no less than three (3) weeks in advance with a subsequent written confirmation of date and time ninety six (96) hours in advance.
- B. "Partial Utilization", "Substantial Completion", and "Warranty Period for Items in Continuous Service": Refer to the Contract Documents for definition.
- C. The terms "open, close, start, stop, operate, verify, energize, de-energize, transfer, switch-over, etc" when used in conjunction with equipment that is in-service or about to be placed in-service is understood to mean: The Owner's operation or maintenance staff shall perform the operation upon written request from the Contractor.
- D. The term "operational test" refers to the period of specified duration that the installed system is tested to verify operational integrity of a system.
- E. "Low Flow Period" refers to the time of day when the wastewater system flow rate reaches the diurnal minimum. It occurs between the hours of 3 AM and 8 AM.

SUBMITTALS

- A. **Bypass Sewer Pumping Plan**: The Contractor shall submit to the Engineer for review and approval detailed drawings and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. The bypass sewer pumping plan shall be certified by a North Carolina professional engineer and submitted at least 30 days prior to beginning bypass pumping operations. Submittal will be in accordance with GUC Design Manual, Submittal Procedures, and shall be submitted concurrently with the Sequence of Construction Plan per Section B 1.b, below. The plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials, and all other incidental items necessary and/or required to insure proper protection of the facilities, including protection of the

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access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these Contract Documents. No construction shall begin until all provisions and requirements have been reviewed and approved by the Engineer. The plan shall include, but is not limited to, the following details:

- 1) Detailed drawings showing staging area, access route, site elevations, proposed pumping system and means of providing protection to the bypass system for each phase of the bypassing operation.
- 2) Plugging methods and types of plugs
- 3) Number and size of pumps and basis of selection
- 4) Number, size, material, method of installation, and location of suction piping
- 5) Number, size, material, method of installation, and location of discharge piping
- 6) Bypass pump sizes, capacity, number of each size to be on site, and power requirements
- 7) Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range are to be submitted)
- 8) Standby power generator size (if necessary), location
- 9) Thrust and restraint block sizes and locations
- 10) Sections showing suction and discharge pipe depth, embedment, select fill, and special backfill, if applicable
- 11) Method of noise control for each pump and/or generator and the decibel rating of each
- 12) Any temporary pipe supports and anchoring required
- 13) Design for access to bypass pumping locations indicated on the drawings
- 14) Selection of bypass pumping pipe size and material (include method of connections to pump and other piping)
- 15) Schedule for installation of and maintenance of bypass pumping lines
- 16) Describe how bypass pumping system will be monitored
- 17) Demonstrate upstream manholes will not overflow from surcharging and that upstream service connections will not be surcharged
- 18) Show discharge from bypass pump system discharge will not surcharge downstream discharge manhole
- 19) Show 100% standby for pumps, power, controls, and suction piping.
- 20) Show force main pipe material and thickness can withstand all normal operating and surge pressures with a safety factor of 2.0
- 21) Denote any conditions that will cause pumps to lose suction lift (prime) and describe procedures to rectify
- 22) Show that the emergency switchover from primary to secondary pumping will be automatic should equipment fail
- 23) Show emergency plan to be used if flooding occurs at work site
- 24) If Contractor plans to connect the existing flow to the new pipeline during non-work hours or times of wet weather then show means and methods of providing a water tight connect between the existing and new system
- 25) Show suction and discharge piping is protected from possible damage from varying creek flows and construction activities
- 26) Show any planned shifting of bypass equipment during construction

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- 27) Provide product information and location(s) if use of road ramps is proposed
- 28) Provide product information and type of equipment and plans to maintain flow when service laterals are disconnected

B. Sequence of Construction Plan: Furnish in accordance with GUC Design Manual, Submittal Procedures.

- 1) Contractor's Sequence of Construction defining work to be performed, including the following items:
 - a) Schedule showing approximate start date, duration and end date on each phase of construction
 - b) Define activities to be performed by or witnessed by the Engineer and Owner and date on which these activities are to be performed
 - c) Scheduling/timing of manufacturers field services, as specified
- 2) Provide complete list of equipment and material that is required to perform each segment of work.

MATERIALS

Pump Equipment:

- 1. Pumps used are to be fully automatic self-priming units that do not require the use of foot valves, vacuum pumps, or diaphragm pumps in the priming system.
- 2. The pumps shall be diesel powered and shall be equipped with sound attenuation equipment capable of reducing noise to 90 dB.
 - a. Contractor shall be responsible for providing and storing a sufficient quantity of diesel fuel on-site to continually operate the pumps for the duration of the temporary bypass pumping period.
 - b. Contractor shall check the pump fuel levels and shall re-fill the tanks to full capacity on a daily basis.
- 3. The bypass pumps are to have variable capacity by controlling the speed of the diesel engine. Each pump shall have a separate control panel.
- 4. Provide pressure and vacuum gauges on the suction and discharge headers.
- 5. Provide pressure switches to start and stop the pumps and a pressure transmitter to vary the speed of the pumping units.
- 6. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of the flows.
- 7. Each pump and driver shall be rated for continuous duty operation over the specified range of conditions without cavitation or overheating, and without excessive vibration or noise. In addition, each pump and driver shall be rated to operate intermittently at shut-off head against a closed discharge valve for periods of not less than 5 minutes without excessive cavitation, overheating, or vibration.
- 8. All sewer plugs will be pneumatic-type plugs by Cherne Industries, or approved equal.

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9. All pumps are to be Godwin Dri-Prime® Automatic self-priming pumps as manufactured by Godwin Pumps of America, Inc., or approved equal.
10. Discharge piping shall be constructed of steel, ductile iron, or polyethylene pipe with positive, restrained joints. Under no circumstances will aluminum “irrigation” type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the Engineer.

Service Lateral Disconnection:

- A. Disconnected sewer service lateral connections shall be accommodated by bypass pumping or containment of the flow from time of disconnection to time of reconnection. This shall be accomplished by a mechanical pump and manifold system or by a watertight storage system such as a bladder tank system. The storage system shall be capable of holding adequate sewage from each sewer service lateral connection for a period of 24 hours. Each storage system shall be emptied or pumped during each 24-hour period and properly disposed of.

CONSTRUCTION METHODS

- A. Wastewater system operational requirements take precedence over Contractor activities. Therefore, interruption of wastewater system operations must be coordinated with Owner and are subject to operational requirements of Owner.
- B. All bypass pumping operations shall be contained within permanent or temporary easements unless shown otherwise on the Plans.
- C. The Contractor shall have qualified personnel on site at all times that bypass pumping is being utilized.

PREPARATION

- A. The Contractor is responsible for locating any existing utilities in the area where the Contractor selects to locate the bypass pumps and pipelines. The Contractor shall locate his bypass pumps and pipelines to minimize any disturbance to existing utilities and not block access to existing utilities. Contractor shall obtain approval of the pump and pipeline locations from the Owner and the Engineer.
- B. Contractor is responsible for coordination with all other portions of work.
- C. During bypass pumping operations, the Contractor shall protect the wastewater system, including the interceptor and manholes, from damage inflicted by his equipment and operations. The Contractor shall be responsible for all physical damage to the wastewater system caused by human or mechanical failure related to his work.
- D. Contractor shall keep spare parts for pumps and piping on-site as outlined above. Adequate hoisting equipment for each pump and accessories shall be maintained on the site during all bypassing operations.

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- E. The Contractor shall provide for utilities and services for his own operations. The Contractor shall furnish, install and maintain all temporary utilities during the contract period including removal upon completion of the Work.
- F. Contractor shall coordinate with governing authority to utilize existing storm pipes and culverts for carrying water-tight bypass piping to cross under existing roads and thoroughfares. Contractor shall be responsible for any damages and restoration of the storm pipe and/or culvert and removal of any debris or sediment that may become blocked by the bypass pipe. Contractor shall temporarily connect new sewer to the existing sewer in the event flooding is anticipated and remove bypass pipe so it does not impact hydraulic performance or the storm pipe or culverts.

INSTALLATION AND REMOVAL

- A. Installation and removal will be in accordance with the approved Bypass Sewer Pumping Plan and the approved Sequence of Construction Plan. Any modifications to the approved Plans shall be submitted to the Engineer at least two (2) weeks prior to proposed modification. Any significant modification may require a coordination meeting with Engineer and Owner.
- B. The Contractor shall pipe sections or make connections to the existing interceptor and construct temporary bypass pumping structures only at the access location and as may be required to provide an adequate suction conduit.
- C. The temporary bypass pumping system shall be tested in accordance with Article 3.04, Paragraph A, before placing the system in operation. Owner and Engineer retain the right to require the Operation Test be performed with water prior begin pumping sewage. Testing periods shall occur only between the work hours outlined in the contract documents. Testing of bypass pumping system shall NOT be allowed Friday through Sunday, on the Owner's scheduled Holidays, or on the day immediately prior to an Owner's scheduled Holiday.
- D. Plugging or blocking of wastewater flows shall incorporate primary and secondary plugging devices. When plugging or blocking is no longer needed for performance of the work, the plugs are to be removed in a manner that permits the wastewater flow to slowly return to normal without surge, surcharging, or causing other major disturbances downstream.
- E. Before the bypass pumping system is disconnected, either to be moved to the next section or at the completion of the work, the Contractor shall discharge sewerage remaining in the bypass discharge piping and pumping equipment into the working sanitary sewer.
- F. At the conclusion of the bypass pumping operation and once written permission is granted by the Owner and Engineer, Contractor shall remove all temporary bypass components and restore the site to original conditions to the satisfaction of the Owner and Engineer.

QUALITY CONTROL AND MAINTENANCE

- A. Pressure Test: Contractor, with assistance from the pump supplier, shall perform low pressure air testing at a minimum test pressure of 5 psi . Test will display no leakage for a minimum of 15 minutes.

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- B. Operation test: Contractor shall operate the temporary bypass pumping system for as long as necessary to demonstrate reliable operation of the entire system, including but not limited to pumps and controls, to the satisfaction of the Owner and Engineer.
- C. Inspection: During the time the Contractor is working at the project site, Contractor shall inspect the bypass pumping system at the start of each work day to ensure that the system is working correctly and shall keep a written log of the pump inspection results.
- D. Maintenance Service: Contractor shall insure that the temporary pumping system is properly maintained and a responsible and competent mechanic/operator shall be on call at all times system is operational.

MEASUREMENT

Bypass Sewer Pumping will be measured on a contract unit per lump sum basis on a percentage of sewer line installation completed and acceptance by the Engineer.

PAYMENT

Payment for “Bypass Sewer Pumping” for performing in accordance with the plans and provisions will be paid for per lump sum. This price and payment will be full compensation for all labor, equipment, material and supplies and performing all operations required to bypass pump sewage around a manhole, sewer section and or pump station in which work is to be performed. The Contractor shall provide all pumps, piping, temporary electric and/or fuel service, temporary connections and other equipment necessary to accomplish bypass pumping; perform all construction; obtain all permits; pay all costs; and perform complete restoration of all existing facilities and areas disturbed to conditions equal to or better than pre-construction conditions and to the satisfaction of the Owner or Engineer.

Payment will be made under:

BYPASS SEWER PUMPINGLS

SPECIAL PROVISIONS

PROJECT SPECIAL PROVISIONS

EROSION CONTROL

SP-36 PERMANENT FERTILIZER, SEEDING, AND MULCHING

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated on the plans. During periods of overlapping dates, the kind of seed to be used shall be determined.

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Payment will be made under:

Pay Item	Pay Unit
Permanent Fertilizer, Seeding, and Mulching	SY

SP-37 FERTILIZER TOPDRESSING

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis and as directed.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

No separate payment will be made for this work.

SP-38 MOWING

The minimum mowing height on this project shall be 4 inches.

No additional payment will be made for this work.

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SP-39 NATIVE GRASS SEEDING AND MULCHING

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the *channel stabilization* shall be seeded by a method that does not alter the typical cross section of the stream bank. (*See sheet for further details on plantings and seeding in the channel stabilization area.*) Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

March 1 - August 31

September 1 - February 28

18#	Creeping Red Fescue	18#	Creeping Red Fescue
6#	Indiangrass	6#	Indiangrass
8#	Little Bluestem	8#	Little Bluestem
4#	Switchgrass	4#	Switchgrass
25#	Browntop Millet	35#	Rye Grain
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Native Grass Seeding and Mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Temporary Seeding

Fertilizer shall be the same analysis as specified for *Permanent Fertilizer, Seeding, and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. German Millet or Browntop Millet shall be used in summer months and rye grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

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Fertilizer Topdressing

Fertilizer used for topdressing shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

Supplemental Seeding

The kinds of seed and proportions shall be the same as specified for *Permanent Fertilizer, Seeding, and Mulching*, and the rate of application may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

Measurement and Payment

Native Grass *Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

SP-40 MINIMIZE REMOVAL OF VEGETATION

The Contractor shall minimize removal of vegetation within project limits to the maximum extent practicable. Vegetation along stream banks and adjacent to other jurisdictional resources outside the construction limits shall only be removed upon approval of Engineer. No additional payment will be made for this minimization work.

SP-41 STOCKPILE AREAS

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed.

SP-42 ACCESS AND HAUL ROADS

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day.

SP-43 WASTE AND BORROW SOURCES

Payment for temporary erosion control measures, except those made necessary by the Contractor's own negligence or for his own convenience, will be paid for at the appropriate contract unit price for the devices or measures utilized in borrow sources and waste areas.

SPECIAL PROVISIONS

No additional payment will be made for erosion control devices or permanent seeding and mulching in any commercial borrow or waste pit. All erosion and sediment control practices that may be required on a commercial borrow or waste site will be done at the Contractor's expense.

All offsite Staging Areas, Borrow and Waste sites shall be in accordance with "Borrow and Waste Site Reclamation Procedures for Contracted Projects" located at:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/Contracte dReclamationProcedures.pdf

All forms and documents referenced in the "Borrow and Waste Site Reclamation Procedures for Contracted Projects" shall be included with the reclamation plans for offsite staging areas, and borrow and waste sites.

SP-44 SAFETY FENCE/TREE PROTECTION FENCE

Description

Safety Fence shall consist of furnishing materials, installing and maintaining polyethylene or polypropylene fence around all construction areas and in accordance with the special provision included herein. Not all specific locations are shown on the plans; the Contractor is responsible for installing sufficient fencing to prevent public traffic through work zones.

Safety Fence shall also be used as tree protection fence. In these locations safety fence shall consist of the protection of selected trees, shrubs, or other woody plants. Fencing shall encompass the plants or trees to the drip-line. A warning sign shall be attached to the fence stating "Tree Protection" Deviations from this must be approved by the Engineer.

Sections of safety fencing shall be installed within two working days following mobilization operations and prior to clearing. Unless prior approval is received from the Engineer, failure to install the fence as specified herein will result in stoppage of all operations until the necessary safety fence is installed.

Materials

Polyethylene or polypropylene fence shall be a highly visible preconstructed safety fence approved by the Engineer. The fence material shall have an ultraviolet coating and be a minimum of 48" high.

Either wood posts or steel posts may be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 ft. in length with a minimum nominal 2" x 2" cross section. Steel posts shall be at least 5 ft. in length, and have a minimum weight of 0.85 lb/ft of length. Steel posts shall have bright orange rebar caps.

SPECIAL PROVISIONS

Construction Methods

No additional clearing and grubbing is anticipated for the installation of this fence. The fence shall be erected to conform to the general contour of the ground.

Safety fencing shall be installed prior to beginning any construction on this project. Before beginning work, the contractor shall meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures. The fencing shall be maintained in place until all construction operations in that particular area are complete. Fences may not be relocated or removed without the written permission of the consultant. At completion, only light grading equipment such as small agricultural tractors shall be allowed on the plants' roots.

Posts shall be set at a maximum spacing of 10 ft., maintained in a vertical position. Posts shall be installed a minimum of 2 ft. into the ground. Wood posts may be sharpened to a dull point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance. The tops of all wood posts shall be cut at a 30-degree angle. The wood posts may, at the option of the Contractor, be cut at this angle either before or after the posts are erected.

The fence geotextile shall be attached to the wood posts with one 2" galvanized wire staple across each cable or to the steel posts with wire or other acceptable means.

Place construction stakes to establish the location of the safety fence in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct pay will be made for the staking of the safety fence. All stakeouts for safety fence shall be considered incidental to the work being paid for as "Construction Surveying", except that where there is no pay item for construction surveying, all safety fence stakeout will be performed by state forces.

The Contractor shall be required to maintain the safety fence in a satisfactory condition for the duration of the project as determined by the Engineer.

The Contractor shall be required to maintain alternative stakes and highly visible flagging in a satisfactory condition for the duration of the project as determined by the Engineer.

In locations safety fence is used as tree protection fence, do not store construction materials, debris, excavated material, or equipment within the fence line or root zone of existing trees. Do not permit vehicles or foot traffic within the drip line; prevent soil compaction over root systems. All underground utilities and drain lines shall be routed outside of the tree protection zone. If lines must traverse the protection area, they shall be bored under the tree. If temporary haul or access roads must pass over the root area of trees to be retained, a road bed of 6 inches of mulch or gravel shall be created to protect the soil. The road bed material shall be replenished as necessary to maintain a 6-inch depth.

Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any grading, construction, demolition or other work that is expected to encounter tree roots must be monitored by the consulting arborist.

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Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Should injury to a tree occur during construction, it should be evaluated as soon as possible by the consultant so that the appropriate treatments can be applied.

Plants that die as a result of the Contractor's negligence shall be removed and replaced as directed by the Engineer at the Contractor's expense. The new plant shall be guaranteed for a year, planted in the proper season, and planted with approved arboricultural specifications.

Do not allow fires under or adjacent to remaining trees or other plants.

The Contractor will be required to cooperate with other contractors, utility companies and others needing access to the project site as (approved by the engineer) to complete the work.

Measurement and Payment

Safety Fence will be measured and paid as the actual number of linear feet of polyethylene or polypropylene fence installed in place and accepted. Such payment will be full compensation including but not limited to furnishing and installing fence geotextile with necessary posts and post bracing, staples, tie wires, warning signs, tree repair, tools, equipment and incidentals necessary to complete this work.

Payment will be made under:

Pay Item	Pay Unit
Safety Fence	Linear Foot

SP-45 CONCRETE WASHOUT STRUCTURE

Description

Concrete washout structures are watertight enclosures constructed above or below grade to contain concrete waste on construction sites. Concrete waste can include concrete waste water from washing out ready-mix trucks, drums, pumps, or other equipment. Concrete waste also includes concrete slurries from concrete saw cutting, coring, grinding, grooving operations, or hydro-concrete demolition. Concrete washouts must prevent the discharge of concrete waste materials to storm drainage systems, surface waters, wetlands, and buffers. Work for above grade washout structures includes gathering high cohesive and low infiltration soil to construct an above grade earthen berm basin. Work also includes preparing a rock and debris free soil base inside this earthen basin, installing a geomembrane liner in the basin, and then placing sandbags along the entire polypropylene liner basin perimeter. Work for below grade washout structures includes preparing a rock and debris free soil base, excavation of a basin with non- vertical side slopes, installing a geomembrane liner in the basin, and then placing sandbags along the entire polypropylene liner excavation perimeter. Construct a gravel pad with Class A stone and a geotextile under liner to provide a defined access path to the concrete washout structures. Install and maintain safety fence around the perimeter of the concrete washout structures.

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Materials

Item	Section
Borrow Material	1018
Stone for Erosion Control, Class A	1042
Geotextile for Drainage, Type 2	1056

The geomembrane basin liner shall meet the following minimum physical properties for low permeability, polypropylene or polyethylene geomembranes:

Property	Test Method	Value	Unit
Thickness, nominal		10	mil
Weight		0.04	lbs./ft ²
*1" Tensile Strength	ASTM D-751	52	lbf.
Elongation at Break	ASTM D-751	600	%
*Grab Tensile	ASTM D-751	70	lbf.
*Trapezoid Tear	ASTM D-4533	55	lbf.
Hydrostatic Resistance	ASTM D-751	70	lb./in ²
Water Vapor Transmission Rate	ASTM E-96 Procedure B	0.03	gal/100in ² /day
Perm Rating	ASTM E-96 Procedure B	0.066	U.S. Perms

***Tests are an average of diagonal directions.**

Safety Fence shall meet the specifications as provided elsewhere in this contract.

Construction Methods

Above Grade Structures

Assemble high cohesive and low infiltration soil to build an enclosed earthen berm for an above grade concrete washout basin in accordance with the details and as directed. Construct the height, length, and width of the earthen berm according to the detail. Slope the interior and exterior walls of the earthen berm at 1:1 and then compact to provide structural stability and contain concrete washout liquids and solid materials until evaporation, curing, extraction, or final removal.

The geomembrane liner will be of sufficient width and length so there will be no seams. Install the geomembrane lining by overlaying it in the basin to completely cover any exposed soil to create a water tight concrete washout basin. Extend the geomembrane lining from inside the basin floor, up the earth slope of the basin and extend, overlay, and wrap outside the earthen berm. Trench the toe of the geomembrane lining into an eight inch depth trench and then backfill and tamper with soil.

Below Grade Structures

Excavate an area for concrete washout in accordance with the details and as directed. Excavate to a minimum depth of 3 feet. Slope the interior walls of the excavated area at 1:1 and then

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compact to provide structural stability and contain concrete washout liquids and solid materials until evaporation, curing, extraction, or final removal.

The geomembrane liner will be of sufficient width and length so there will be no seams. Install the geomembrane lining by overlaying it in the excavated area to completely cover any exposed soil to create a watertight impoundment. Extend the geomembrane lining from the excavation floor, up the interior slope of the excavated basin and beyond the outside perimeter of the excavation.

Prepare the soil base to be free of rocks or other debris that may cause holes or tears in the geomembrane lining.

Install safety fence around the perimeter of the concrete washout structures in accordance with the *Safety Fence* special provision.

Construct a stone gravel pad with Class A stone (or other approved aggregate material) and a geotextile liner to provide a defined access path to the concrete washout structure. Construct the stone gravel pad according to *Roadway Standard Drawings* No. 1607.01 and Section 1607 of the *Standard Specifications*. Post a sign with the words “Concrete Washout” in close proximity of the concrete washout area, so it is clearly visible to site personnel.

The construction details for the above grade and below grade concrete washout structures can be found on the following web page link:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/soil_water/details/

Maintenance and Removal

Maintain the concrete washout structure(s) to provide adequate holding capacity plus a minimum freeboard of 12 inches. Remove and dispose of hardened concrete and return the structure to a functional condition after reaching 75% capacity.

Inspect concrete washout structures for damage (i.e. tears in geomembrane liner, missing sand bags) and maintain for effectiveness.

Remove the concrete washout structures and sign upon project completion. If appropriate and possible, reuse the geomembrane liner, the sandbags, orange safety fence, the Class A stone, and the geotextile. Otherwise, properly dispose of items. Grade the earth material to match the existing contours and permanently seed and mulch area.

Measurement and Payment

Concrete Washout Structure will be measured and paid for by counting the actual number of washout structures installed and maintained on the project. Such price and payment will be full compensation for all work including but not limited to furnishing materials, construction,

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maintenance and removal of concrete washout structures, grading and seeding and mulching area. The provisions of Article 104-5 of the *Standard Specifications* will not apply to this item of work.

Payment will be made under:

Pay Item	Pay Unit
Concrete Washout Structure	Each

SP-46 CONSTRUCTION ENTRANCE

DESCRIPTION

This item includes all labor, material, tools and equipment to install Construction Entrance as shown on the Plans and in the Proposal or as directed by the Engineer.

MEASUREMENT

Construction Entrance will be measured on a contract unit per each basis upon completion and acceptance by the Engineer.

PAYMENT

Payment for “Construction Entrance” installed in accordance with the plans and standard details will be paid for by each. This price and payment will be full compensation for all materials and labor to install Construction Entrance as shown on Plans.

Pay Item	Pay Unit
Construction Entrance	Each

SP-47 INLET PROTECTION

DESCRIPTION

This item includes all labor, material, tools and equipment to install Inlet Protection as shown on the Plans and in the Proposal or as directed by the Engineer.

MEASUREMENT

Inlet Protection will be measured on a contract unit per each basis upon completion and acceptance by the Engineer.

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PAYMENT

Payment for “Inlet Protection” installed in accordance with the plans and standard details will be paid for by each. This price and payment will be full compensation for all materials and labor to install Inlet Protection as shown on Plans.

Pay Item

Inlet Protection

Pay Unit

Each

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LANDSCAPE

SP-48 TOPSOIL

Description

The Contractor shall furnish and install Topsoil from off-site sources sufficient to meet the requirements specified herein for all landscape areas and as directed by the Engineer.

Requirements

Topsoil shall be a sandy loam based mix free from subsoil, inorganic materials, stones, roots, trash, noxious vegetation, or other extraneous materials large than one and one-half inch in diameter or length.

Submittals

- A. Proposed Topsoil Analysis: Laboratory report indicated soil type, pH organic content, and critical nutrient composition including nitrogen-phosphorus-potassium (N-P-K) for review and approval by Engineer

Execution

Prior to placement of Topsoil, all ornamental planting areas shall be mechanically tilled to a depth of 12” and turfgrass areas tilled to a depth of 5” from finish grade. Install Topsoil in 6” lifts.

Protect completed work from compaction during construction.

Measurement and Payment

Topsoil will be measured and paid for at the contract unit per cubic yard. Such price and payment will include all materials, tools, labor, equipment and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Topsoil	Cubic Yard

SPECIAL PROVISIONS

PROJECT SPECIAL PROVISIONS

STRUCTURES

SP-49 FALSEWORK AND FORMWORK

DESCRIPTION

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term “temporary works” is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

MATERIALS

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

DESIGN REQUIREMENTS

A. Working Drawings

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

SPECIAL PROVISIONS

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Screenshot Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab.

For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 1/2" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

SPECIAL PROVISIONS

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.

Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than $\frac{3}{4}$ ".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO *Guide Design Specifications for Bridge Temporary Works* except as noted herein.

1. Wind Loads

Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

Table 2.2 - Wind Pressure Values

Height Zone feet above ground	Pressure, lb/ft ² for Indicated Wind Velocity, mph				
	70	80	90	100	110
0 to 30	15	20	25	30	35
30 to 50	20	25	30	35	40
50 to 100	25	30	35	40	45
over 100	30	35	40	45	50

2. Time of Removal

SPECIAL PROVISIONS

The following requirements replace those of Article 3.4.8.2.

Do not remove forms until the concrete has attained strengths required in Article 420-16 of the Standard Specifications and these Special Provisions.

Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina

COUNTY	25 YR (mph)	COUNTY	25 YR (mph)	COUNTY	25 YR (mph)
Alamance	70	Franklin	70	Pamlico	100
Alexander	70	Gaston	70	Pasquotank	100
Alleghany	70	Gates	90	Pender	100
Anson	70	Graham	80	Perquimans	100
Ashe	70	Granville	70	Person	70
Avery	70	Greene	80	Pitt	90
Beaufort	100	Guilford	70	Polk	80
Bertie	90	Halifax	80	Randolph	70
Bladen	90	Harnett	70	Richmond	70
Brunswick	100	Haywood	80	Robeson	80
Buncombe	80	Henderson	80	Rockingham	70
Burke	70	Hertford	90	Rowan	70
Cabarrus	70	Hoke	70	Rutherford	70
Caldwell	70	Hyde	110	Sampson	90
Camden	100	Iredell	70	Scotland	70
Carteret	110	Jackson	80	Stanley	70
Caswell	70	Johnston	80	Stokes	70
Catawba	70	Jones	100	Surry	70
Cherokee	80	Lee	70	Swain	80
Chatham	70	Lenoir	90	Transylvania	80
Chowan	90	Lincoln	70	Tyrell	100
Clay	80	Macon	80	Union	70
Cleveland	70	Madison	80	Vance	70
Columbus	90	Martin	90	Wake	70
Craven	100	McDowell	70	Warren	70
Cumberland	80	Mecklenburg	70	Washington	100
Currituck	100	Mitchell	70	Watauga	70
Dare	110	Montgomery	70	Wayne	80

SPECIAL PROVISIONS

Davidson	70	Moore	70	Wilkes	70
Davie	70	Nash	80	Wilson	80
Duplin	90	New Hanover	100	Yadkin	70
Durham	70	Northampton	80	Yancey	70
Edgecombe	80	Onslow	100		
Forsyth	70	Orange	70		

B. Review and Approval

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

A. Maintenance and Inspection

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

SPECIAL PROVISIONS

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

B. Foundations

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

REMOVAL

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

METHOD OF MEASUREMENT

Unless otherwise specified, temporary works will not be directly measured.

BASIS OF PAYMENT

Payment at the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

SPECIAL PROVISIONS

SP-50 CRANE SAFETY

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration regulations (OSHA).

Submit all items listed below to the Engineer prior to beginning crane operations involving critical lifts. A critical lift is defined as any lift that exceeds 75 percent of the manufacturer's crane chart capacity for the radius at which the load will be lifted or requires the use of more than one crane. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

CRANE SAFETY SUBMITTAL LIST

Competent Person: Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.

Riggers: Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.

Crane Inspections: Inspection records for all cranes shall be current and readily accessible for review upon request.

Certifications: By July 1, 2006, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

SP-51 GROUT FOR STRUCTURES

DESCRIPTION

This special provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, or decks. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

SPECIAL PROVISIONS

MATERIAL REQUIREMENTS

Use a Department approved pre-packaged, non-shrink, non-metallic grout. Contact the Materials and Tests Unit for a list of approved pre-packaged grouts and consult the manufacturer to determine if the pre-packaged grout selected is suitable for the required application.

When using an approved pre-packaged grout, a grout mix design submittal is not required.

The grout shall be free of soluble chlorides and contain less than one percent soluble sulfate. Supply water in compliance with Article 1024-4 of the Standard Specifications.

Aggregate may be added to the mix only where recommended or permitted by the manufacturer and Engineer. The quantity and gradation of the aggregate shall be in accordance with the manufacturer's recommendations.

Admixtures, if approved by the Department, shall be used in accordance with the manufacturer's recommendations. The manufacture date shall be clearly stamped on each container. Admixtures with an expired shelf life shall not be used.

The Engineer reserves the right to reject material based on unsatisfactory performance.

Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Test the expansion and shrinkage of the grout in accordance with ASTM C1090. The grout shall expand no more than 0.2% and shall exhibit no shrinkage. Furnish a Type 4 material certification showing results of tests conducted to determine the properties listed in the Standard Specifications and to assure the material is non-shrink.

Unless required elsewhere in the contract the compressive strength at 3 days shall be at least 5000 psi. Compressive strength in the laboratory shall be determined in accordance with ASTM C109 except the test mix shall contain only water and the dry manufactured material. Compressive strength in the field will be determined by molding and testing 4" x 8" cylinders in accordance with AASHTO T22. Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

When tested in accordance with ASTM C666, Procedure A, the durability factor of the grout shall not be less than 80.

SAMPLING AND PLACEMENT

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease and other foreign matter. Saturate concrete surfaces with clean water and remove excess water prior to placing grout.

SPECIAL PROVISIONS

Do not place grout if the grout temperature is less than 50°F or more than 90°F or if the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 45°F.

Provide grout at a rate that permits proper handling, placing and finishing in accordance with the manufacturer's recommendations unless directed otherwise by the Engineer. Use grout free of any lumps and undispersed cement. Agitate grout continuously before placement.

Control grout delivery so the interval between placing batches in the same component does not exceed 20 minutes.

The Engineer will determine the locations to sample grout and the number and type of samples collected for field and laboratory testing. The compressive strength of the grout will be considered the average compressive strength test results of 3 cube or 2 cylinder specimens at 28 days.

BASIS OF PAYMENT

No separate payment will be made for "Grout for Structures". The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.

SP-52 STORMWATER DRAINAGE STRUCTURES

DESCRIPTION

Construct stormwater drainage structures (both City of Greenville and NCDOT) including metal grates, covers, frames, steps and other hardware as shown in the plans and in accordance with City of Greenville Manual of Standard Designs and Details, NCDOT 2018 Roadway Standard Drawings, Section 840 of the *NCDOT 2018 Standard Specifications* and this project special provision.

Work covered under this special provision includes construction of Stormwater Drainage Structures as shown on the plan sheets, necessary excavation, dewatering, backfill around the Stormwater Drainage Structures, foundation conditioning material, geotextile fabric, reinforcing steel, concrete, curing agents, joint fillers, joint sealers, mortar, steps, precast concrete drainage structure units, frame and cover, and removal and disposal of existing structures where existing structures are to be replaced. Separate payment to be made for the removal and disposal of existing structures where existing structures are not to be replaced.

MATERIALS

Depending on the type of drainage structure called out on the plans (City of Greenville or NCDOT), the materials utilized will be in accordance with the City of Greenville Manual of Standard Designs and Details or NCDOT 2018 Standard Specification Section 840 respectively.

SPECIAL PROVISIONS

Materials shall be as shown on the plans or described in Article 840-2 of the NCDOT Standard Specifications.

Foundation – A minimum of 1.5 foot of foundation conditioning material below stormwater drainage structures. Foundation for stormwater drainage structures shall meet the requirements of Section 414 of the Standard Specifications. In addition, Type VI foundation material shall be encapsulated in filter fabric conforming to Type 4 requirements in Section 1056 of the Standard Specifications. The filter fabric shall be placed perpendicular to the culvert barrel. Provide sufficient overhang beyond the excavation to allow a minimum lap of 3 feet when the foundation material is placed, and fabric wrapped on top. Perpendicular sections of fabric shall be continuous. A minimum lap of 2 feet shall be provided between sections of fabric. The cost of this work will be included in the unit cost of the structures, no separate payment will be allowed.

SUBMITTALS

Technical product data on each product including brand name and manufacturer.

Shop Drawings:

Standard Fabrication: Indicate structure locations, elevations, sections, equipment support, piping sizes, and elevations of penetrations.

Custom Fabrication: Indicate design, construction and installation details, typical reinforcement and additional reinforcement at openings for each custom type, size and configuration.

Product Data: Submit manhole frames and lids, accessories, component construction, features, configuration, dimensions, and joint data.

Fabrication shall not begin until all submittal approvals are received.

CONSTRUCTION METHODS

The construction methods will be in accordance with the City of Greenville Manual of Standard Designs and Details or *NCDOT 2018 Standard Specification* Section 840 respectively.

MEASUREMENT

Stormwater Drainage Structures will be measured and paid in units of each per structure type of the actual number completed and accepted.

SPECIAL PROVISIONS

PAYMENT

Stormwater Drainage Structures will be paid for on a contract unit of each per structure type. Payment will be full compensation for supplying all materials, labor, and equipment to complete the work in accordance with the plans and this specification.

PAY ITEM	UNIT
Standard Precast Catch Basin, COG Std 610.02	EA
Standard Precast Manhole, COG Std 612.03	EA
Precast Junction Box with Manhole, COG Std 613.01	EA
Traffic Bearing Grated Drop Inlet, NCDOT Std 840.35	EA
Precast 6' Manhole (with Manhole), NCDOT Std 840.52	EA

SP-53 OVERSIZED JUNCTION BOXES

DESCRIPTION

Work covered under this special provision includes construction of Oversized Junction Boxes as shown on the plan sheets, necessary excavation, dewatering, backfill around the Oversized Junction Boxes, foundation conditioning material, geotextile fabric, reinforcing steel, concrete, curing agents, joint fillers, joint sealers, mortar, steps, precast concrete drainage structure units, manhole ring and cover.

Some junction boxes may act as conflict boxes with sanitary sewer lines running through them. Sanitary sewer piping will be installed within a sleeve pipe. Sleeve pipes shall be cast into the junction boxes. Cost for the sanitary sewer sleeve pipes are not included in the oversized junction box pay items. Refer to the drawings for locations of conflict boxes.

Removal and replacement of existing brick planter, facility signage, concrete slab, and flag poles in front of the Public Works building is considered incidental to the installation of Structure_02 in accordance with the plans.

SUBMITTALS

Technical product data on each product including brand name and manufacturer.

Provide laboratory tests results verifying 28-day compressive strength in accordance with the requirements as specified herein.

SPECIAL PROVISIONS

Reinforcing steel shop drawings shop drawings for oversized junction boxes detailing reinforcement fabrication and bar placement. The shop drawings shall clearly indicate length, location, size, spacing and splices for all reinforcing steel. The shop drawings shall provide sufficient detail to permit placement of reinforcement without use of the design drawings. The shop drawings shall include a complete bill of materials for all reinforcing steel.

Fabrication shall not begin until all submittal approvals are received.

MATERIALS

Materials shall be as shown on the plans or described in Article 840-2 of the NCDOT Standard Specifications.

Materials as shown on plans. Concrete for structures shall be Class AA. Grade 60 reinforcing steel shall be used.

Precast concrete manhole shall be constructed as shown on the plans.

Foundation - A minimum of 1.5 foot of foundation conditioning material below junction boxes. Foundation for oversized junction boxes shall meet the requirements of Section 414 of the Standard Specifications. In addition, Type VI foundation material shall be encapsulated in filter fabric conforming to Type 4 requirements in Section 1056 of the Standard Specifications. The filter fabric shall be placed perpendicular to the culvert barrel. Provide sufficient overhang beyond the excavation to allow a minimum lap of 3 feet when the foundation material is placed and fabric wrapped on top. Perpendicular sections of fabric shall be continuous. A minimum lap of 2 feet shall be provided between sections of fabric.

CONSTRUCTION METHODS

Construction methods shall be as described in Article 840-3 of the NCDOT Standard Specifications and as shown on the plans.

MEASUREMENT

Oversized Junction Boxes shall be measured and paid in units of each for the actual number completed and accepted. There shall be no separate measurement for vertical depth of structure.

SPECIAL PROVISIONS

PAYMENT

Oversized Junction Boxes will be paid for on a contract unit of each. Payment will be full compensation for bypass pumping, pump around and dewatering, 1.5 feet of Foundation Conditioning Material, supplying all materials, labor, and equipment to complete the work in accordance with the plans and this specification.

Payment will be made under:

Pay Item	Pay Unit
Custom Junction Box (Structure_01).....	Each
Custom Junction Box (Structure_02).....	Each

SP-54 PRECAST REINFORCED CONCRETE BOX CULVERT

General

This Special Provision covers the design, fabrication and construction of precast reinforced concrete box culverts intended for the conveyance of storm water. The work shall also include the excavation, bypass pumping, pump around and dewatering, construction of precast bends and cast in place bends, precast openings, connections to junction boxes, catch basins and piping, joints, joint wrap, foundation conditioning material, geotextile fabric, and all risers, materials, and labor as required to bring catch basins, manholes, and drop inlets to grade as necessary to complete the work shown on the plans. Removal and disposal of existing structures, stormwater conduits (including pipes and boxes), and pavement within trench limits are considered incidental to this item. Removal and reinstallation of existing light poles are considered incidental to this item. Separate payment to be made for the removal and disposal of existing structures, stormwater conduits, and pavement outside of trench limits shown to be removed on the plans.

When a precast reinforced concrete box culvert is required on the plans, design the precast culvert sections in accordance with ASTM C1577 or the current edition of the AASHTO LRFD Bridge Design Specifications. Rate all sizes of precast reinforced concrete box culverts in accordance with the current edition of the AASHTO Manual for Bridge Evaluation. Ensure the culvert rates for the AASHTO design loads and North Carolina’s legal loads (see Section 2.0 for North Carolina’s legal loads). Provide the size and number of barrels as indicated on the plans. Provide a precast box culvert that meets the requirements of Section 1077 and any other applicable parts of the Standard Specifications.

The design and rating of the precast members is the responsibility of the Contractor and is subject to review, comments and approval. Submit detailed plans and rating sheets for review. Include


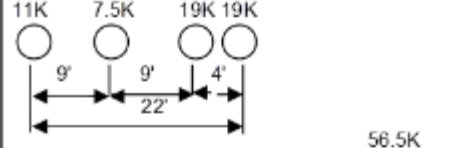

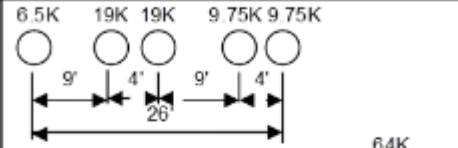
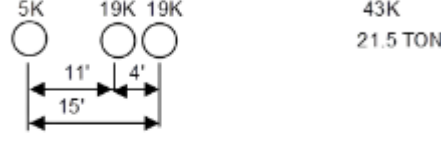
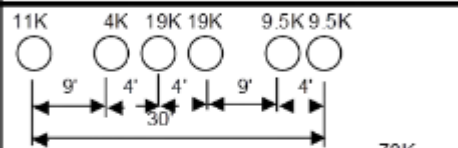
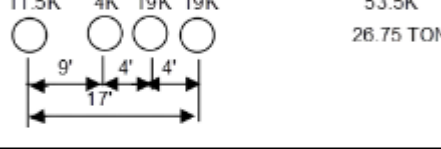
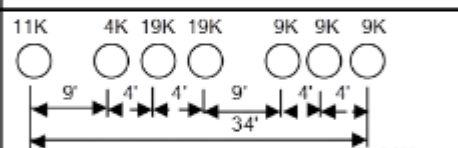
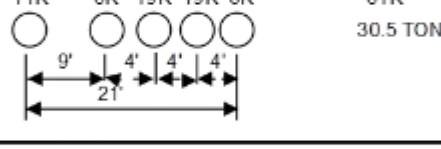
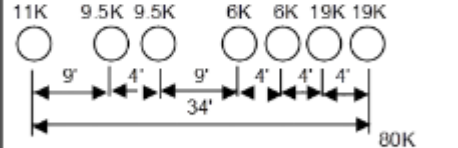
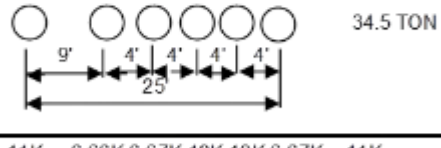
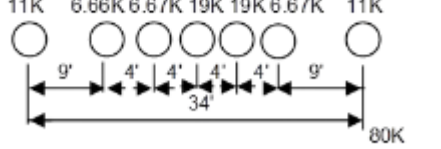
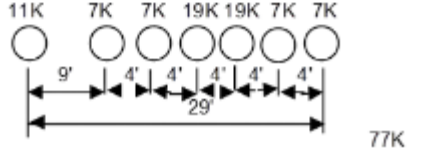
SPECIAL PROVISIONS

all details in the plans, including the size and spacing of the required reinforcement necessary to build the precast box culvert and its proposed stormdrain tie-ins. Have a North Carolina Registered Professional Engineer check and seal the plans, rating sheets and design calculations. After the plans, rating sheets and design calculations are reviewed and, if necessary, the corrections made, submit one set of plans and rating sheets on 22" x 34" sheets to become part of the contract plans.

SPECIAL PROVISIONS

North Carolina's Legal Loads

Apply the following legal loads to all structures carrying interstate traffic:

SINGLE VEHICLE(SV)		TRUCK TRACTOR SEMI-TRAILER(TTS T)	
REF. #	SCHEMATIC	REF. #	SCHEMATIC
SH		T4A	
S3A		T5B	
S3C		T6A	
S4A		T7A	
S5A		T7B	
S6A			
S7A			
S7B			

SPECIAL PROVISIONS

Apply the following legal loads to all structures carrying non-interstate traffic:

SINGLE VEHICLE (SV)			TRUCK TRACTOR SEMI-TRAILER (TTST)		
REF. #	SCHEMATIC		REF. #	SCHEMATIC	
SNSH	5K 22K 14'	27K 13.5 TON	TNAGRIT3	22K 22K 22K 66K 33 Ton 9' 9' 18'	
SNGARBS2	23.5K 16.5K 14'	40K 20 TON	TNT4A	12.1K 12.05K 21K 21K 66.15K 33.075 TON 9' 9' 4' 22'	
SNAGRIS2	22K 22K 14'	44K 22 Ton	TNAGRIT4	22K 22K 21K 21K 86K 43 TON 9' 9' 4' 22'	
SNCOTTS3	4.5K 25K 25K 11' 4' 15'	54.5K 27.25 TON	TNAGT5A	22K 21K 21K 13K 13K 90K 45 TON 9' 4' 9' 4' 28'	
SNAGGRS4	16K 15.85K 19K 19K 9' 4' 4' 17'	69.85K 34.925 TON	TNAGT5B	6K 21K 21K 21K 21K 90K 45 TON 9' 4' 9' 4' 26'	
SNS5A	12.1K 8.5K 21K 21K 8.5K 9' 4' 4' 4' 21'	71.1K 35.55 TON	TNT6A	12.1K 8.2K 21K 21K 10.45K 10.45K 83.2K 41.6 TON 9' 4' 4' 9' 4' 30'	
SNS6A	12.1K 8.6K 8.6K 21K 21K 8.6K 9' 4' 4' 4' 4' 25'	79.9K 39.95 TON	TNT7A	4.1K 4K 21K 21K 11.3K 11.3K 11.3K 84K 42 TON 9' 4' 4' 9' 4' 4' 34'	
SNS7B	7.6K 8.6K 8.6K 21K 21K 8.6K 8.6K 9' 4' 4' 4' 4' 4' 29'	84K 42 TON	TNT7B	4.1K 10.5K 10.5K 8.45K 8.45K 21K 21K 84K 42 TON 9' 4' 9' 4' 4' 4' 34'	

SPECIAL PROVISIONS

Precast Reinforced Concrete Box Sections

The precast reinforced concrete box culvert sections shall match the size and hydraulic opening indicated in the contract plans.

Design

Design Fill – The design earth cover is reported on the plans as the elevation difference between the point of maximum fill and the bottom of the top slab.

Placement of Reinforcement – Provide a 1 inch concrete cover over the reinforcement subject to the provisions of Section F. Extend the inside reinforcement into the tongue portion of the joint and the outside reinforcement into the groove portion of the joint. Detail the clear distance of the end wires so it is not less than 1/2 inch or more than 2 inches from the ends of the box section. Assemble reinforcement per the requirements of ASTM C1577 or the approved design. The exposure of the ends of the wires used to position the reinforcement is not a cause for rejection.

Laps and Spacing – Use lap splices for the transverse reinforcement. Detail the transverse wires so that the center to center spacing is not less than 2 inches or more than 4 inches. Do not detail the longitudinal wires with a center to center spacing of more than 8 inches.

Joints

Produce the precast reinforced concrete box section with tongue and groove ends. Design and form these ends of the box section so, when the sections are laid together, they make a continuous line of box sections with a smooth interior free of appreciable irregularities in the flowline, all compatible with the permissible variations given in Section F. The internal joint formed at the tongue and groove ends of the precast units shall be sealed with either bitumen/butyl sealant or closed-cell neoprene material. The internal joint material shall be installed in accordance with the manufacturer's recommendations. The material shall be shown on the shop drawings when they are submitted for review.

Seal the external joint with an outside sealer wrap conforming to ASTM C877 that is at least 12 inches wide and covers the joint on both the sides and the top of the box section. Use ConWrap CS-212 from Concrete Sealants, Inc., EZ-Wrap from Press-Seal Gasket Corporation, Seal Wrap from Mar-Mac Manufacturing Co., Inc., Cadilloc External Pipe Joint from Cadilloc, or an approved equal for the outside sealer wrap. If the outside sealer wrap is not applied in a continuous strip along the entire joint, a 12 inch minimum lap of the outside sealer wrap is permitted. Before placing the outside sealer wrap, clean and prime the area receiving the outside sealer wrap in accordance with the sealer wrap manufacturer recommendations. The joint wrap manufacturer installation

SPECIAL PROVISIONS

recommendations shall be included with shop drawings submitted for review. The external joint wrap shall be installed in pieces, as indicated on Figure 1 below:

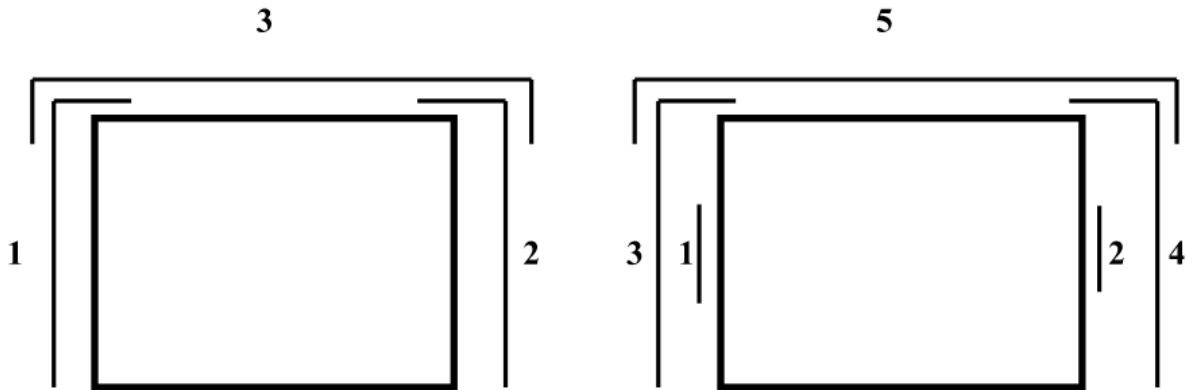


Figure 1

Cover the external joint sealer with a 3 foot strip of filter fabric conforming to Type 4 requirements in Section 1056 of the Standard Specifications.

Place multiple lines of a precast reinforced concrete box culvert such that the longitudinal joint between the sections has a minimum width of 3 inches. Fill the joint between multiple lines of precast box sections with Class A concrete. Use Class A concrete that meets the requirements listed in the Standard Specifications except that Field Compressive Strength Specimens are not required.

Manufacture

Manufacture precast reinforced concrete box culvert sections by either the wet cast method or dry cast method.

Mixture – In addition to the requirements of Section 1077 of the Standard Specifications, do not proportion the mix with less than 564 lb/yd³ of Portland cement.

Strength – Concrete shall develop a minimum 28-day compressive strength of 5000 psi. Movement of the precast sections should be minimized during the initial curing period. Any damage caused by moving or handling during the initial curing phase will be grounds for rejection of that precast section.

Air Entrainment – Air entrain the concrete in accordance with Section 1077 - 5(A) of the Standard Specifications. For dry cast manufacturing, air entrainment is not required.

SPECIAL PROVISIONS

Testing – Test the concrete in accordance with the requirements of Section 1077 - 5(B).

Handling – Handling devices or holes are permitted in each box section for the purpose of handling and placing. Submit details of handling devices or holes for approval and do not cast any concrete until approval is granted. Remove all handling devices flush with concrete surfaces as directed. Fill holes in a neat and workmanlike manner with an approved non-metallic non-shrink grout, concrete, or hole plug.

Physical Requirements

Acceptability of precast culvert sections is based on concrete cylinders made and tested in accordance with ASTM C31 and ASTM C39.

Permissible Variations

Flatness - All external surfaces shall be flat, true, and plumb. Irregularities, depressions, or high spots on all external surfaces shall not exceed 1/2 inch in 8 feet.

Internal Dimensions – Produce sections so that the internal and haunch dimensions do not vary more than 1/4 inch from the plan dimensions.

Adjacent Sections - Internal, external, and haunch dimensions for connecting sections shall not vary more than 1/2 inch.

Length of Tongue and Groove - The minimum length of the tongue shall be 4 inches. The minimum length of the groove shall be 4 inches. The dimensions of the tongue and groove shall not vary more than 1/4 inch from the plan dimensions.

Slab and Wall Thickness – Produce sections so that the slab and wall thickness are not less than that shown on the plans by more than 5% or 3/16 inch, whichever is greater. A thickness more than that required on the plans is not a cause for rejection.

Length of Opposite Surfaces – Produce sections so that variations in laying lengths of two opposite surfaces of the box section meet the requirements of ASTM C1577, Section 11.3.

Length of Section – Produce sections so that the underrun in length of a section is not more than 1/2 inch in any box section.

Position of Reinforcement – Produce sections so that the maximum variation in the position of the reinforcement is $\pm 3/8$ inch for slab and wall thicknesses of 5 inches or less and $\pm 1/2$ inch for slab and wall thicknesses greater than 5 inches. Produce sections so that the concrete cover is never less than 5/8 inch as measured to the internal surface or the external

SPECIAL PROVISIONS

surface. The preceding minimum cover limitations do not apply at the mating surfaces of the joint.

Area of Reinforcement – Use the design steel shown on the plans for the steel reinforcement. Steel areas greater than those required are not cause for rejection. The permissible variation in diameter of any wire in finished fabric is prescribed for the wire before fabrication by either AASHTO M32 or M225.

Marking

Each section shall be match-marked in order of intended installation as indicated on the approved shop drawings. Ensure that pieces fit together neatly and in a workmanlike manner. This will require that a minimum of three adjacent sections of the culvert be fitted at the production yard at a time and then match-marked. Once three sections have been match-marked, the first section may be removed for shipment and a fourth section set for marking. Continue in a progressive manner until all sections have been properly match-marked. The producer shall document the GO-NO-GO dimensional measurements of each box culvert section produced through the post-pour inspection process.

Clearly mark each section of the box culvert in accordance with ASTM C1577, Section 15. The information requirements of Section 15.1 shall be clearly marked on the inner surface of each section.

Construction

Pre-installation Meeting - A pre-installation meeting is required prior to installation. Representatives from the Contractor, the precast box manufacturer, and the City should attend this meeting. The precast box manufacturer representative shall be on site during installation.

Foundation - A minimum of 1.5 foot of foundation conditioning material below culvert. Foundation for precast box culvert shall meet the requirements of Section 414 of the Standard Specifications. In addition, Type VI foundation material shall be encapsulated in geotextile fabric conforming to Type 4 requirements in Section 1056 of the Standard Specifications. The geotextile fabric shall be placed perpendicular to the culvert barrel. Provide sufficient overhang beyond the excavation to allow a minimum lap of 3 feet when the foundation material is placed and fabric wrapped on top. Perpendicular sections of fabric shall be continuous. A minimum lap of 2 feet shall be provided between sections of fabric.

Installation - Sections shall be placed at the beginning of the outlet end of the culvert with the groove end being laid upgrade. Tongue sections shall be laid into the groove sections.

SPECIAL PROVISIONS

Positive means shall be provided to pull each section firmly into the previously placed section so that the joints are tightly homed. Use a "come-along", box pullers or other approved methods to create a positive means of joining box sections. Construction equipment shall not have direct contact with the box section. The load of the box shall be suspended by lifting device during joining procedure.

Backfill - Complete backfill in accordance with Section 414 of the Standard Specifications. Backfill shall be Class IV up to top slab of box culvert.

Measurement

The quantity of Precast Reinforced Concrete Box Culvert to be paid for will be the actual number of linear feet of precast reinforced concrete box culvert which has been installed and accepted. Measurement will be made horizontally along the centerline of the box culvert through bends.

Basis of Payment

The Precast Reinforced Concrete Box Culvert as described on the plans and in this Special Provision will be paid for at the contract unit price per linear feet for "8' X 8' Precast R.C. Box Culverts". Such payment will be full compensation for all work covered by this Special Provision, the plans and applicable parts of the Standard Specifications and will include, but not be limited to, furnishing all labor, materials, equipment and other incidentals necessary to complete this work. Such payment will also be full compensation for bypass pumping, pump around and dewatering, concrete, reinforcing steel, labor, equipment and all other related materials necessary for the completion of the barrel section, necessary connections, and risers as defined in this Special Provision. Removal and reinstallation of existing light poles, Culvert Excavation, and 1.5' of Foundation Conditioning Material will be paid for as part of this pay item.

Payment will be made under:

Pay Item	Pay Unit
8' X 8' Precast R.C. Box Culverts.....	Linear Feet

SP-55 REMOVE AND RESET ENTRANCE GATE

Description

This item shall consist of all removal and reset activities associated with entrance/exit gates including disassembly, storage and protection of reset items, fence removal and replacement, concrete trough removal and replacement, median removal and replacement, bollard removal and replacement, and any other activities necessary not listed here. Items to be protected and reset include motorized gate, gate motor, sensors, and card reader(s). All electrical/fiber connections necessary for the operation of the gate are to be reestablished during the gate reset.

SPECIAL PROVISIONS

Execution

1. EXAMINATION
 - A. Administrative Requirements: Verification of existing conditions before starting work.
 - B. Verify existing items designated to reset are tagged and identified.
 - C. Identify area for placing removed items when items are indicated to be protected and reset.
2. PREPARATION
 - A. Call gate and gate motor manufacture for information about proper removal and reset procedures not less than three working days before performing Work.
3. PROTECTION
 - A. Locate, identify, and protect from damage items intended to be reset.
 - B. Protect adjacent structures designated to remain.
 - C. Protect bench marks and survey control points from damage or displacement if necessary.
4. REMOVAL
 - A. Remove designated chain link fence as needed.
 - B. Remove designated paving, curbs, medians, and site slabs where necessary outside of trench extents.
 - C. Remove concrete gate trough as needed.
 - D. Where indicated on Drawings partially remove paving, curbs, and slabs. Neatly saw cut edges at right angle to surface.
 - E. Leave site in clean condition.
5. REPLACE
 - A. Replace chain link fence, paving, curbs, medians, and site slabs where removed.
6. RESET
 - A. Reset identified protected items in accordance with manufacturer's instructions.

Method of Payment

The quantity to be paid for under remove and reset entrance gate will be as shown on the bid form (each).

Basis of Payment

The quantity of this item to be paid for will include activities such as site clearing, loading and removing waste materials from the site, and protection and reset of identified items based on the contract unit price shown on the bid form. All labor, tool, equipment, and incidentals necessary for the completion of the removal and reset of entrance gates shall be considered incidental to the contract bid item.

Payment will be made under:

SPECIAL PROVISIONS

Pay Item

Remove and Reset Entrance Gate

Pay Unit

EA

SP-56 TEMPORARY STORMWATER 84" CMP TIE-IN (STATION 11+75)**DESCRIPTION**

1. Under this item the Contractor is required to design and furnish all materials, labor, equipment, power, etc. to implement a temporary tie-in system into the proposed 8'x8' reinforced concrete box culvert (RCBC).
2. Contractor shall submit a plan for approval that allow connection of existing 84" CMP to new 8'x8' RCBC. Such plan shall ensure a water tight system.
3. A minimum of 1.5' of foundation conditioning material in compliance with Section 1016-3 of NCDOT 2018 Standard Specification is required within submitted Stormwater Tie-In Plan.

SUBMITTALS

- A. **Stormwater Tie-In Plan:** The Contractor shall submit to the Engineer for review and approval detailed drawings and descriptions outlining all provisions and precautions to be taken by the Contractor regarding connecting the existing 84" CMP with the proposed 8'x8' RCBC. The stormwater tie-in plan shall be certified by a North Carolina professional engineer and submitted at least 30 days prior to beginning tie-in construction. The plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials, and all other incidental items necessary and/or required to insure constructability of the submitted tie-in plan. No construction shall begin until all provisions and requirements have been reviewed and approved by the Engineer. The plan shall include, but is not limited to, the following details:
 - 1) Detailed drawings showing elevations and means and methods of watertight connection to the proposed downstream system.
 - 2) Number, size, material, method of installation, and location of stormwater conduit
 - 3) Any temporary pipe supports and anchoring required
- B. **Sequence of Construction Plan:**
 - 1) Contractor's Sequence of Construction defining work to be performed, including the following items:
 - a) Schedule showing approximate start date, duration and end date of construction
 - b) Define activities to be performed by or witnessed by the Engineer, Owner, approved Representative and date on which these activities are to be performed

SPECIAL PROVISIONS

MATERIALS

Stormwater Conduits:

1. Stormwater conduits including but not limited to all pipes and/or box culverts shall meet the specifications of the identified conduit within this contract.
2. Conduits may be pre-cast or cast in place depending on the contractor’s chosen means and methods.
3. All materials required for installation in accordance with standard details shall be included. These materials could include but are not limited to joint wraps, foundation material, backfill, pipe plugs, concrete collars, and all other materials required for a water tight seal upon completion.

MEASUREMENT

Temporary Stormwater 84” CMP Tie-In will be measured on a contract unit per lump sum basis upon completion and acceptance by the Engineer.

PAYMENT

Payment for “Temporary Stormwater 84” CMP Tie-In” for performing in accordance with the plans and provisions will be paid for per lump sum. This price and payment will be full compensation for all labor, equipment, material and supplies and performing all operations required to install temporary stormwater 84” CMP tie-in from the existing 84” CMP into the proposed 8’x8’ RCBC. Operations shall include the installation of all stormwater conduits, construction of a watertight seal, and bypass pumping stormwater, and/or stormwater section in which work is to be performed. The Contractor shall provide all pumps, materials, and other equipment necessary to accomplish tie-in, perform all construction, and perform complete restoration of all existing facilities and areas disturbed to conditions equal to or better than pre-construction conditions and to the satisfaction of the Owner or Engineer.

Payment will be made under:

TEMPORARY STORMWATER 84” CMP TIE-IN (STATION 11+75).....LS

SP-57 TEMPORARY STORMWATER 30” RCP TIE-IN (STATION 13+00)

DESCRIPTION

4. Under this item the Contractor is required to design and furnish all materials, labor, equipment, power, etc. to implement a temporary tie-in system into the proposed 8’x8’ reinforced concrete box culvert (RCBC).
5. Contractor shall submit a plan for approval that allow connection of existing 30” RCP to new 8’x8’ RCBC. Such plan shall ensure a water tight system.

SPECIAL PROVISIONS

6. A minimum of 1.5' of foundation conditioning material in compliance with Section 1016-3 of NCDOT 2018 Standard Specification is required within submitted Stormwater Tie-In Plan.

SUBMITTALS

- C. Stormwater Tie-In Plan: The Contractor shall submit to the Engineer for review and approval detailed drawings and descriptions outlining all provisions and precautions to be taken by the Contractor regarding connecting the existing 30" RCP with the proposed 8'x8' RCBC. The stormwater tie-in plan shall be certified by a North Carolina professional engineer and submitted at least 30 days prior to beginning tie-in construction. The plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials, and all other incidental items necessary and/or required to insure constructability of the submitted tie-in plan. No construction shall begin until all provisions and requirements have been reviewed and approved by the Engineer. The plan shall include, but is not limited to, the following details:
 - 4) Detailed drawings showing elevations and means and methods of watertight connection to the proposed downstream system.
 - 5) Number, size, material, method of installation, and location of stormwater conduit
 - 6) Any temporary pipe supports and anchoring required
- D. Sequence of Construction Plan:
 - 2) Contractor's Sequence of Construction defining work to be performed, including the following items:
 - c) Schedule showing approximate start date, duration and end date of construction
 - d) Define activities to be performed by or witnessed by the Engineer, Owner, approved Representative and date on which these activities are to be performed

MATERIALS

Stormwater Conduits:

4. Stormwater conduits including but not limited to all pipes and/or box culverts shall meet the specifications of the identified conduit within this contract.
5. Conduits may be pre-cast or cast in place depending on the contractor's chosen means and methods.
6. All materials required for installation in accordance with standard details shall be included. These materials could include but are not limited to joint wraps, foundation material, backfill, pipe plugs, concrete collars, and all other materials required for a water tight seal upon completion.

MEASUREMENT

Temporary Stormwater 30" RCP Tie-In will be measured on a contract unit per lump sum basis upon completion and acceptance by the Engineer.

SPECIAL PROVISIONS

PAYMENT

Payment for “Temporary Stormwater 30” RCP Tie-In” for performing in accordance with the plans and provisions will be paid for per lump sum. This price and payment will be full compensation for all labor, equipment, material and supplies and performing all operations required to install temporary stormwater 30” RCP tie-in from the existing 30” RCP into the proposed 8’x8’ RCBC. Operations shall include the installation of all stormwater conduits, construction of a watertight seal, and bypass pumping stormwater, and/or stormwater section in which work is to be performed. The Contractor shall provide all pumps, materials, and other equipment necessary to accomplish tie-in, perform all construction, and perform complete restoration of all existing facilities and areas disturbed to conditions equal to or better than pre-construction conditions and to the satisfaction of the Owner or Engineer.

Payment will be made under:

TEMPORARY STORMWATER 30” RCP TIE-IN (STATION 13+00).....LS

SP-58 ACIDIC RESISTANT CONCRETE

The implementation of suitable concrete mix designs for acidic groundwater is required per the geotechnical report included within this contract. Concrete mix design shall incorporate cementitious materials with high resistance to acidic water. Concrete/precast manufacturer shall submit intended mix design to Engineer for review and approval prior to casting. Acidic resistant concrete mix design is only required for Structure_01, Structure_02, 8’x8’ reinforced concrete box culverts, and 78” concrete pipe culverts.

PAYMENT

There will be no separate measurement or payment for this work. All associated costs will be considered incidental to Custom Junction Boxes (Structure_01 & Structure_02), 8’x8’ Precast R.C. Box Culverts, and 78” R.C. Pipe Culverts, Class III.

WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]

Owner: City of Greenville
Engineer: W.K. Dickson & Co. Inc.
Contractor:
Project: Public Works Stormwater Pipe
Improvements Phase 1
Contract Name:

Owner's Project No.:
Engineer's Project No.: 20220983.00.RA
Contractor's Project No.:

Date Issued:

Effective Date of Work Change
Directive:

Contractor is directed to proceed promptly with the following change(s):

Description:

[Description of the change to the Work]

Attachments:

[List documents related to the change to the Work]

Purpose for the Work Change Directive:

[Describe the purpose for the change to the Work]

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

Notes to User—Check one or both of the following

Non-agreement on pricing of proposed change. Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ _____ **[increase] [decrease] [not yet estimated].**

Contract Time: _____ days **[increase] [decrease] [not yet estimated].**

Basis of estimated change in Contract Price:

Lump Sum Unit Price Cost of the Work Other

Recommended by Engineer

Authorized by Owner

By: _____

Title: _____

Date: _____

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CHANGE ORDER NO.: [Number of Change Order]

Owner: City of Greenville
 Engineer: W.K. Dickson & Co. Inc.
 Contractor:
 Project: Public Works Stormwater Pipe
 Improvements Phase 1
 Contract Name:

Owner's Project No.:
 Engineer's Project No.: 20220983.00.RA
 Contractor's Project No.:

Date Issued:

Effective Date of Change
 Order:

The Contract is modified as follows upon execution of this Change Order:

Description:

[Description of the change]

Attachments:

[List documents related to the change]

Change in Contract Price	Change in Contract Times [State Contract Times as either a specific date or a number of days]
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] from previously approved Change Orders No. 1 to No. [Number of previous Change Order] : \$ _____	[Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order] : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
[Increase] [Decrease] this Change Order: \$ _____	[Increase] [Decrease] this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

Recommended by Engineer (if required)

Accepted by Contractor

By: _____

Title: _____

Date: _____

Authorized by Owner

Approved by Funding Agency (if applicable)

City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number: 20220983.00.RA

By: _____
Title: _____
Date: _____

FIELD ORDER NO.: [Number of Field Order]

Owner: City of Greenville
Engineer: W.K. Dickson & Co. Inc.

Owner's Project No.:
Engineer's Project No.: 20220983.00.RA

Contractor:
Project: Public Works Stormwater Pipe
Improvements Phase 1
Contract Name:

Contractor's Project No.:

Date Issued:

Effective Date of Field
Order:

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):
Drawing(s) / Details (s):

Description:

[Description of the change to the Work]

Attachments:

[List documents supporting change]

Issued by Engineer

By: _____

Title: _____

Date: _____

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DOCUMENT 00 91 13
ADDENDUM (SAMPLE)

City of Greenville
Public Works Stormwater Pipe Improvements Phase 1
WKD Project Number #20220983.00.RA

ADDENDUM NUMBER []

[Date Prepared]

BID DATE: **[Month, Day], [Year]** [a.m.] [p.m.]

TO ALL BIDDERS:

This Addendum forms a part of the Contract Documents and modifies the Bidding Documents dated [] and all previous Addenda.

Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may disqualify the Bidder.

Below are changes, additions, and/or clarifications to the bid documents for this project.

Specifications

Item 1: [Document Title]

Item 2: [Document Title]

Item 3: [Document Title]

Item 4: [Document Title]

Drawings

Item 5: [Document Title]

Item 6: [Document Title]

Clarifications

Item 7: [Document Title]

Item 8: [Document Title]

Item 9: [Document Title]

Item 9: [Document Title]

Receipt of this addendum must be acknowledged on Page [00 41 13-1] [00 41 43-1] of your Bid Form.

Sincerely,

W. K. Dickson & Co., Inc.
N.C. License F-0374

SEAL

[Project Manager Name]
Project Manager

/[Initials of typist]

Enclosures [If applicable]

APPENDIX A

- 1) Geotechnical Report by Froehling and Robertson, Inc.
 - A. A copy of a geotechnical report is included with this document, titled Report of Subsurface Exploration and Preliminary Geotechnical Engineering Evaluation for Greenville PW Yard Stormwater Improvements, dated May 22, 2023, and prepared by Froehling & Robertson, Inc.
 - B. This report identifies properties of below grade conditions and offers recommendations for structural fill placement and compaction, prepared primarily for use of Engineer.
 - C. Recommendations described are not requirements of this Contract, unless specifically referenced in Contract Documents.
 - D. This report, by its nature, cannot reveal all conditions existing on the site. Should subsurface conditions be found to vary substantially from this report, changes in design and construction of structural fill placement will be made, with resulting credits or expenditures to Contract Price/Sum accruing to Owner.

- 2) Stewart SUE
 - A. A copy of a subsurface utility engineering report is included with this document, titled Stewart Test Hole Report, Project Name Greenville PW Yard Stormwater Improvements, dated May 3-May 9, 2023, and prepared by Stewart.
 - B. This report identifies properties of selected below grade utilities, prepared primarily for use of Engineer.
 - C. This report, by its nature, is not intended to reveal all utility conditions existing on the site.

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Report of Subsurface Exploration and Preliminary Geotechnical Engineering Evaluation

*Greenville PW Yard Stormwater Improvements
Greenville, North Carolina
F&R Project No. 66B-0006 Revision 1*

Prepared For:



*720 Corporate Center Drive
Raleigh, North Carolina 27607*

Prepared By:

Froehling & Robertson, Inc.
*310 Hubert Street
Raleigh, North Carolina 27603*

May 22, 2023



May 22, 2023

Alex McMillan, P.E.
Project Manager
WK Dickson & Co., Inc.
720 Corporate Center Drive
Raleigh, North Carolina 27607

**Subject: Report of Subsurface Exploration &
Preliminary Geotechnical Engineering Evaluation
Greenville PW Yard Stormwater Improvements
Greenville, North Carolina
F&R Project No. 66B-0006 Revision 1**

Dear Mr. McMillan:

Froehling & Robertson, Inc. (F&R) has completed the authorized subsurface exploration and preliminary geotechnical engineering evaluation for the Greenville PW Yard Stormwater Improvements in Greenville, North Carolina. Our services were performed in general accordance with F&R's Proposal No. 2266-00298 Rev. 1, originally dated October 25, 2022. The attached report presents our understanding of the project, reviews our exploration procedures, and describes existing site and subsurface conditions. This report has been revised to include the data collected from F&R's return site visit May 4, 2023 which included additional groundwater sampling and laboratory analysis.

We have enjoyed working with you on this project, and are prepared to assist you with the recommended quality assurance observation and testing services during construction. Please contact us if you have any questions regarding this report or if we may be of further service.

Sincerely,

FROEHLING & ROBERTSON, INC

Erin Benson

Erin Benson, E.I.
Geotechnical Engineering Staff



2023.05.22
Michael S. Sabodish Jr. 12:21:23
-04'00'

Michael S. Sabodish Jr., Ph.D., P.E.
Geotechnical Dept. Manager



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1.0 PURPOSE & SCOPE OF SERVICES

The purpose of this limited subsurface exploration, preliminary geotechnical engineering evaluation, and groundwater/surface water assessment was to explore the subsurface conditions along the existing stormwater corrugated metal pipe (CMP) alignment and assess the groundwater/surface water impact on the existing CMP pipe. The results of the assessment will be used to determine the possible causes of the premature degradation of the existing CMP and to provide subsurface data that can be used during the future design and construction phases of the project.

F&R's scope of services included the following:

- Completion of eight (8) soil test borings (B-1 to B-8) to a depth of 20.0 feet below the existing ground surface;
- Preparation of typed Boring Logs and development of a Subsurface Profile;
- Performing geotechnical laboratory testing on representative soil samples;
- Installation of three (3) temporary monitoring wells (TMWs) on February 21, 2023 and three (3) additional TMWs on May 4, 2023 for the collection of groundwater samples;
- Environmental sampling of: two (2) surface water samples (S-1 and S-2), site groundwater at three (3) locations (TMW-1, TMW-2, and TMW-3), and three (3) water samples from manholes (MH-1, MH-2, and MH-3) that carry the base flow within the existing CMP;
- Preparation of this report by a professional engineer.

2.0 PROJECT INFORMATION

2.1 SITE LOCATION AND DESCRIPTION

F&R understands that the existing CMP that traverses the site from east to west has severely degraded, and the degradation may be caused by constituents contained within the site groundwater or stormwater at the City of Greenville PW Yard located approximately 700 feet north of the intersection of Howell Street and Beatty Street in Greenville, North Carolina (see Figure No. 1 in Appendix I).

Based on a review of current aerial images, the east portion of the site consists of paved parking and drive areas which support maintenance facilities, storage structures, and offices. The west



portion of the site consists of grass and gravel covered drive areas, as well as areas that are being used to store maintenance materials such as gravel, sand, pipe, and associated work vehicles.

2.2 PROPOSED CONSTRUCTION

F&R understands that the project will consist of the replacement of approximately 3,000 linear feet (LF) of 10-year old galvanized CMP at the at the existing City of Greenville PW Yard. Based on information provided by WK Dickson, the existing CMP will be replaced with a large diameter stormwater system containing junction boxes and reinforced concrete pipe (RCP).

3.0 EXPLORATION PROCEDURES

3.1 SUBSURFACE EXPLORATION

F&R advanced eight (8) widely-spaced soil test borings (B-1 to B-8) to a depth of 20.0 feet below the existing ground surface. The borings were advanced at the approximate locations shown on the Boring Location Plan presented as Figure No. 2 in Appendix I. The test boring locations were established in the field by Stewart Engineering prior to performing a Level B SUE survey to clear the proposed boring locations of utilities. The boring elevations were interpolated from Pitt County GIS topographic data. Given these methods of determination, the boring locations and ground surface elevations should only be considered approximate.

The test borings were advanced using an ATV-mounted drill rig using 2-1/4" inside diameter (I.D.) hollow stem augers for borehole stabilization. Representative soil samples were obtained using a standard two-inch outside diameter (O.D.) split-barrel sampler in general accordance with ASTM D 1586, Penetration Test and Split-Barrel Sampling of Soils (Standard Penetration Test). The number of blows required to drive the split barrel sampler three, consecutive 6-inch increments with an automatic hammer is recorded, and the blows after the first 6-inch increment are added to obtain the Standard Penetration Test (SPT) N-value representing the penetration resistance of the soil. Five (5) SPT samples were collected in the top 10.0 feet and then at a nominal interval of 5.0 feet thereafter.



A representative portion of the soil from each SPT sample was retrieved and sealed in an eight-ounce glass jar, labeled, and transported to our laboratory for classification and analysis by a geotechnical engineer. The soil samples were classified in general accordance with the Unified Soil Classification System (USCS), using visual-manual identification procedures (ASTM D2488). The boring logs for the exploration are presented in Appendix II of this report.

Groundwater level measurements were attempted at the termination of drilling in all of the borings. Temporary piezometers were installed in five (5) borings (B-1, B-2, B-5, B-6, and B-8) in order to facilitate obtaining stabilized groundwater measurements. The temporary piezometers consisted of 1-inch diameter, hand-slotted PVC pipes installed into the selected borings. After obtaining 24-hour stabilized groundwater levels, the temporary observation wells were removed and all of the test borings were backfilled with soil cuttings. The borings located in paved areas (B-1 and B-4 to B-6) were backfilled with cement/bentonite grout and an asphalt cold patch was placed and compacted at the ground surface to closely match existing site grades.

Additionally, WK Dickson requested and selected the locations for the collection of eight (8) additional groundwater samples during F&R's site visit on February 21, 2023. Upon completion of the geotechnical borings, borings B-3, B-4, and B-7 were converted into temporary monitoring wells TMW-1, TMW-2, and TMW-3, respectively. After receiving the laboratory analytical results from the original groundwater water sampling, WK Dickson requested additional sampling be performed at the previously sampled locations of TMW-1 and TMW-2, referred to as TMW-1a and TMW-2a during the return visit on May 4, 2023, and an additional location approximately 250 feet northwest of TMW-1/1a, labeled as TMW-4. The TMWs were used for site groundwater collection. In addition, two (2) surface water locations were sampled (S-1 and S-2); and the water within three (3) manholes (MH-1, MH-2, and MH-3) that carry the base flow within the existing CMP were sampled. . The temporary monitoring wells were constructed with a 2-inch diameter, schedule 40 PVC riser, flush-threaded to a 10-foot, 2-inch machine-slotted PVC screen (0.010" slotted screen). Washed silica sand (coarse) was then placed from the bottom of the borehole to 1.0 feet above the PVC screen. A 2.0 foot layer of bentonite pellets were placed above the sand. Prior to groundwater sample



collection, the temporary monitoring wells were purged a total of three (3) well volumes in an attempt to collect fresh groundwater samples. The approximate temporary monitoring well locations are shown on the Boring Location Plan presented as Figure No. 2 in Appendix I.

3.2 LABORATORY TESTING

F&R selected four (4) soil samples and subjected them to geotechnical index testing consisting of natural moisture content, sieve analysis (% passing #200 sieve only), and Atterberg Limits determinations. The purpose of the index testing was to aid in our classification of the soil samples and development of engineering recommendations. The laboratory testing was performed in general accordance with applicable ASTM standards. The laboratory test results are presented in Appendix III of this report.

In addition to the geotechnical testing, the collected groundwater and surface water samples were submitted for analysis of VOCs by EPA Method 8260, SVOCs by EPA Method 8270, Total Petroleum Hydrocarbons (TPH-GRO & DRO) by EPA Method 8015, Alkalinity by SM 2320B, pH by EPA Method 9040, Salinity by Method SM 2520B, Chloride by Method SM 4500Cl E, Ammonia by Method SM 4500 NH₃/350.1, Nitrate/Nitrite by SM 4500 NO₃F/353.2, and Total Phosphate by SM 4500 PE/365.4. The results of this testing may assist in the determination of the premature degradation of the existing CMP.

4.0 REGIONAL GEOLOGY & SUBSURFACE CONDITIONS

4.1 REGIONAL GEOLOGY

The project site is located within the Coastal Plain Province of North Carolina. The Coastal Plain Province is a broad flat plain with widely spaced low rolling hills where the near surface soils have their origin from the deposition of sediments several million years ago during the period that the ocean receded from this area to its present location along the Atlantic Coast. It is noted that the Coastal Plain soils vary in thickness from only a few feet along the western border areas of the Coastal Plain to over ten thousand feet in some areas along the coast. Our test borings were terminated in Coastal Plain soils.



According to our review of the 1985 Geologic Map of North Carolina, published by the Department of Natural Resources and Community Development, the site is located within an area mapped as Tertiary period deposits and is comprised of sedimentary deposits that appear to be located within the Yorktown and Duplin Formations. These marine sediments are indicated to have been deposited between 2 and 63 million years ago and are considered relatively young in terms of geologic age. The Yorktown Formation includes fossiliferous clay with varying amounts of fine grained sand, bluish gray, shell material commonly concentrated in lenses, mainly in the area north of the Neuse River. The Duplin Formation includes shelly, medium to coarse-grained sand, sandy marl, and limestone, bluish gray, mainly in area south of Neuse River.

4.2 SUBSURFACE CONDITIONS

4.2.1 General

The subsurface conditions discussed in the following paragraphs and those shown on the attached boring logs represent an estimate of the subsurface conditions based on interpretation of the boring data using normally-accepted geotechnical engineering judgments. Sometimes the relatively small sample obtained in the field is insufficient to definitively describe the origin of the subsurface material. As such, the origin descriptions should be considered subjective. Although individual soil test borings are representative of the subsurface conditions at the boring locations on the dates shown, they are not necessarily indicative of subsurface conditions at other locations or at other times. Data from the specific soil test borings are shown on the boring logs presented in Appendix II of this report.

A Subsurface Profile has been prepared from the boring data to graphically illustrate the subsurface conditions encountered at the site. The subsurface profile is presented as Figure No. 3 in Appendix I. Strata breaks designated on the boring logs and subsurface profile represent approximate boundaries between soil types. The transition from one soil type to another may be gradual or occur between soil samples. This section of the report provides a general discussion of subsurface conditions encountered within the areas of the proposed construction at the



project site. More detailed descriptions of the subsurface conditions at the individual boring locations are presented on the boring logs provided in Appendix II of this report.

4.2.2 Surficial Materials

Asphalt was encountered at the surface in four (4) borings (B-1, B-4, B-5, and B-6) due to their locations in the existing roadway. The asphalt had a typical layer thickness ranging from approximately 1 to 4 inches and was typically underlain by a 2 to 8 inch thick layer of ABC stone. At the existing ground surface of boring B-3, approximately 3 inches of ABC stone was encountered.

Approximately 1 inch of surficial organic soils were encountered at the existing ground surface in borings B-7 and B-8. The surficial organic soils generally consisted of dark-colored soil material containing roots and/or other organic components, and is generally unsuitable for engineering purposes.

F&R has not performed any laboratory testing to determine the organic content or other horticultural properties of the observed surficial organic soil materials. Therefore, the term “Surficial Organic Soil” is not intended to indicate suitability for landscaping and/or other purposes. It should be noted that the surficial organic soil depths provided in this report are based on driller observations and should be considered approximate. We note that the transition from surficial organic soil to underlying materials may be gradual, and therefore the observation and measurement of the surficial organic soil depths is subjective. Actual surficial organic soil depths should be expected to vary.

4.2.3 Fill and Possible Fill Soils

Fill and possible fill soils were encountered in all of the borings from just below the surficial soils or ABC stone (or from the existing ground surface in boring B-2) typically to depths ranging from 1.5 to 8.5 feet below the existing ground surface. The fill extended to 13.5 feet in borings B-4, B-5, and B-6. It is noted that sometimes the relatively small and disturbed sample obtained in the field is insufficient to definitively describe the origin of the subsurface material. Since man-made materials, deleterious materials, or other obvious evidence of fill were not encountered in the soil samples



that appeared to be earth fill, some of the materials believed to be earth fill are referred to as “possible fill”.

The fill and possible fill soils consisted of very loose to medium dense silty and clayey sands (USCS-SM and SC) with SPT N-values ranging from 2 to 17 blows per foot (bpf); soft to firm, low plasticity sandy clays (USCS –CL) with SPT N-values ranging from 3 to 6 bpf; a layer of firm, high plasticity sandy clay (USCS – CH) with an SPT N-value of 6 bpf; and a layer of medium dense silty sandy gravel (USCS - GM) with an SPT N-Value of 17 bpf. A soil sample was unable to be recovered in boring B-4 from 3.5 to 6.5 feet. Additionally, a layer of material classified as “cinders” was encountered in boring B-7 from 3.5 to 6.5 feet. It is believed these fill and possible fill soils were placed during construction activities for the waste yard.

Fill and possible fill soils exhibiting SPT N-values of 4 bpf or less are generally indicative of fill with poor compaction while fill soils exhibiting SPT N-values of 5 to 8 bpf are generally indicative of fill with moderate compaction. Well-compacted fill free of gravel, would typically exhibit SPT N-values of 9 bpf or higher. In general, it appears that the fill was poorly to well compacted. However, it should be noted that the presence of fine to coarse gravel and asphalt likely amplified the SPT N-values, and as such, may not reflect the true consistency of the fill.

4.2.4 Coastal Plain Soils

Extending below the surficial and/or fill or possible fill material, the borings typically encountered coastal plain soils consisting of very loose to medium dense silty, clayey, and/or poorly graded sands (USCS - SM, SC, SC-SM, and SP) with SPT N-values ranging from 2 to 26 bpf; firm to stiff, low plasticity sandy clays (USCS –CL) with SPT N-values ranging from 5 to 11 bpf; and very soft to stiff, high plasticity sandy clay (USCS – CH) with SPT N-values ranging from 2 to 9 bpf.

Highly plastic coastal plain sandy clays (CH) were encountered in borings B-1 and B-2 at a depth of 3.5 and 1.5 feet below existing ground surface and extended to depths of 13.5 and 6.5 feet, respectively. Deeper layers of highly plastic clays were encountered in borings B-7 and B-8 from 13.5 to 20.0 feet.



Very loose/soft to soft (SPT N-value 4 bpf or less) coastal plain soils were encountered in three (3) borings (B-1, B-3, and B-8) in the upper 8.5 feet of the soil profile and extended to 13.5 feet below the existing ground surface. Deeper layers of very loose/soft to soft coastal plain soils were encountered in four (4) borings (B-1, B-6, B-7, and B-8) at 13.5 feet and extended to a depth of 18.5 feet below existing ground surface.

4.3 SOIL MOISTURE AND GROUNDWATER CONDITIONS

The borings encountered a combination of moist, wet, and saturated soils. Many of the recovered soil samples were described as being moist (i.e., within 3 to 5 percentage points of the estimated optimum moisture content). However, wet and/or saturated soil conditions (5 to 6 percentage points or greater over the estimated optimum moisture content) were typically encountered in all of the borings in the upper 1.5 to 6.5 feet of the soil profile. Once encountered, the wet or saturated soils extended to the boring termination depth of 20.0 feet.

Groundwater level measurements were attempted in all borings at the termination of drilling and after a stabilization period of approximately 24-hours following the completion of drilling. Groundwater was encountered in all of the borings immediately after drilling at depths ranging from 10.1 to 14.8 feet. After a stabilization period of approximately 24-hours, groundwater was encountered in all of the borings at depths ranging from 9.0 to 13.5 feet.

It should be noted that the groundwater levels fluctuate depending upon seasonal factors such as precipitation and temperature. As such, soil moisture and groundwater conditions at other times may vary from those described in this report. F&R notes that due to the presence of relatively impervious silty/clayey soils, trapped or perched water conditions may be encountered during periods of inclement weather and during seasonally wet periods. Shallow groundwater may also develop in the areas of the drainage features during periods of inclement weather.



5.0 GEOTECHNICAL DESIGN RECOMMENDATIONS

5.1 GENERAL

The conclusions and recommendations contained in this section of the report are based upon the results of the initial eight (8) soil test borings performed by F&R, our experience with similar projects and subsurface conditions, and the information provided to us regarding the proposed stormwater pipe replacement. It is our opinion that the subsurface conditions encountered at the project site are generally suitable for the proposed construction from a geotechnical engineering perspective, provided the recommendations presented in subsequent sections of this report are followed throughout the design and construction phases of this project with adequate engineering construction oversight and observation.

The soil types encountered in the borings consisted of silty, clayey, and/or poorly graded sands (USCS - SM, SC, SC-SM, and SP) and low to high plasticity sandy clays (USCS – CL and CH). High plasticity sandy clays (CH) were encountered in four (4) borings at depths ranging from 1.5 to 13.5 feet. These highly plastic soils are moisture sensitive and can be difficult to properly place and compact.

Additionally, very loose/soft to soft (SPT N-value 4 bpf or less) soils were encountered in seven (7) borings in the upper 8.5 feet of the soil profile. Deeper layers of very loose/soft to soft soils were encountered in four (4) borings at 13.5 feet and extended to 18.5 feet below existing ground surface. Due to the presence of very loose/soft to soft soils encountered near the surface, and deeper across a majority of the project site, subgrade repairs are likely to be required if these soils are encountered at subgrade and finished grades.

5.2 OPEN CUT TRENCHES

Based on our review of the information provided to F&R regarding the proposed stormwater pipe replacement, it appears the stormwater pipe will be installed via open-cut methods. The depth of the open-cut was not known at the time of this report.



Based on the results of the test borings, if the new stormwater pipe is installed at the elevation of the existing CMP, it will typically extend through moist to saturated, very loose to medium dense clayey/silty sands (SC and SM), or soft to stiff low to high plasticity sandy clays (CL and CH). It is not anticipated that hard/difficult materials will be encountered during new stormwater pipe installation. If very loose/soft, highly plastic, and/or unstable soils conditions are encountered at pipe and manhole bearing grades, it is anticipated that some bearing grade repair will likely be required to provide a stable base for construction of the proposed stormwater pipe and manholes. Subgrade repair will likely consist of undercutting the unsuitable soils and backfilling the undercut excavation with washed NCDOT #57 wrapped in a geotextile fabric.

The highly plastic clays (CH) were encountered borings B-1 and B-2 at a depth of 2.0 and 1.5 feet below the existing ground surface and extended to a depth of 13.5 and 6.5 feet, respectively. Deeper layers of high plasticity clays (CH) were encountered in borings B-7 and B-8 at a depth of 13.5 feet and extended to 20.0 feet. Due to the shrink/swell potential of these soils and poor subgrade characteristics, F&R recommends that a minimum of 2.0 feet of separation be maintained between stable high plasticity soils and proposed pipe and manhole bearing grades. The highly plastic soils can be difficult to properly place and compact, become unstable at higher moisture contents, and are also unsuitable to provide adequate support to utility lines, including manholes. As such, if these highly plastic soils are encountered at the bearing grade of the stormwater pipe excavation or bearing grade of new manholes, they should be undercut to a depth of 2.0 feet and replaced with approved properly compacted structural fill or NCDOT #57 stone.

As previously discussed, all of the borings encountered groundwater in the upper 9.0 to 13.5 feet of the soil profile and wet to saturated soils in the upper 6.5 feet. Therefore, dewatering measures will likely be required during excavation activities in most areas of the project and may be required to maintain a stable, dry working platform during open cut operations. Depending upon the prevailing weather conditions at the time of construction, groundwater may be encountered at other areas of the site and may require dewatering measures such as sumps or well points. Dewatering will be discussed in a subsequent section of this report.



We recommend that a qualified geotechnical engineer or their representative evaluate all of the trench excavations and bearing grades prior to the stormwater line and manhole placement. If soft or otherwise unsuitable soils are encountered at the trench bearing level, undercutting and repair of the bearing grades may be required and should be performed as directed by the project geotechnical engineer. If softened/saturated soils or standing water are present at the trench bearing level, a 1.5 to 2.0 foot thick layer of clean washed #57 stone may be recommended to provide a stable bedding for the pipe and manholes. The clean washed stone should be encased in geotextile fabric (Mirafi 140N or equivalent) in order to allow sump pumping out of the washed stone and help maintain lowered groundwater during pipe and manhole installation and backfilling operations.

5.3 DEWATERING

As previously mentioned, groundwater was encountered in all of the borings at depths ranging from 9.0 to 13.5 feet. Additionally, wet and/or saturated soil conditions were encountered in all of the borings at depths ranging from 0.5 to 6.5 feet below the existing ground surface. Once encountered, wet and/or saturated soil conditions typically extended to boring termination depths. As such, it is anticipated wet soils and/or groundwater will be encountered during pipe and manhole installation in most areas and dewatering will likely be necessary in order to maintain drained, stable excavations and to prevent softening/loosening of the excavation subgrades. The groundwater should be lowered to a depth of at least 3.0 to 4.0 feet below the bottoms of the excavations. However, groundwater elevations will likely vary throughout the year, and will be elevated especially during the seasonally-wet months (October through April). If groundwater is encountered, dewatering may be able to be handled by sump and pumping techniques. However during periods of inclement weather, sump pits and pumping may not be sufficient to control both groundwater and surface water, and more extensive drainage/dewatering measures may be



required. The method of surface water and groundwater control should be determined and designed by the contractor, but may require well points, sheet piling, or other means.

It should be noted that if groundwater levels are not effectively maintained below the base of the excavations during construction, unstable and loosened subgrade conditions could develop, which may cause excessive settlements to develop beneath the sewer line and manholes or require additional subgrade repair (e.g., densification, undercutting & replacement with washed stone, etc.). Therefore, efforts should be incorporated in the construction sequence to properly control groundwater levels during construction. Additionally, it is recommended that only excavation contractors experienced in similar excavations and groundwater control should be allowed to perform this work.

5.4 EXCAVATION CHARACTERISTICS

Based on the results of the soil test borings, a majority of the soils encountered in the upper 8.5 feet of the soil profile consisted of very loose to medium dense silty/clayey sands, and soft to stiff sandy clays. Therefore, we anticipate that the open-cut construction will be performed in soils that can be excavated using conventional backhoes, track excavators, and boring machines. Although not encountered during our exploration, if Partially Weathered Rock (PWR) is encountered within the excavation depths, it is expected that ripping, chipping and/or blasting may be required for removal of PWR. The speed and ease of removing PWR and rock excavation will depend of the equipment utilized, experience of the equipment operators and geologic structure of the PWR.

5.5 STRUCTURAL FILL PLACEMENT AND COMPACTION

It is expected that the low-plasticity on-site soils (USCS – SM, SC, SC-SM, SP, and CL) will be suitable for use as structural fill/backfill material provided they are at a moisture content suitable to achieve proper compaction and are stable during compaction and at final subgrade. These low to moderately plastic soils are generally considered fair to good materials for use as structural earth fill. However, as previously indicated, some of these soils that may be excavated during utility construction may be wet and/or saturated and will likely contain some deleterious materials such as asphalt, organics, and cinders. These deleterious materials are not suitable for re-use as structural



fill. These materials should be segregated from the soil matrix, if possible. If segregation of these materials is not possible, or will be too time consuming, F&R recommends these deleterious soils and subsequent unsuitable fill be exported from the project site and approved, clean import soils be used to backfill the sewer line excavation. Depending upon the cut depths and site conditions at the time of construction, the existing soils may require moisture conditioning (e.g., drying of wet soils) prior to use as structural fill. As such, it is recommended that earthwork be performed during the summer months when the weather conditions are more conducive to moisture conditioning of fill materials. If earthwork is performed during the seasonally-wet months, additional subgrade undercutting and repair will likely be required and it may be difficult to properly compact structural fill.

Highly plastic clays (CH) were encountered in two (2) borings in the upper 6.5 feet of the soil profile. These soils are considered poor materials for re-use as structural fill/backfill because they can become unstable and be difficult to properly place and compact at higher water contents. If it is necessary to import soils to the site, F&R recommends that a qualified geotechnical engineer or engineering technician working under the direction of the geotechnical engineer approve the suitability of the imported soils prior to their delivery to the site. Imported structural fill should consist of low plasticity soil (LL<35, PI<20), have a maximum dry density of at least 100 pcf, and be free of organic and other deleterious materials.

All structural earth fill should be compacted at a moisture content within +3 percentage points of the optimum moisture content and placed in loose lifts not exceeding 8 inches. All structural earth fill should be compacted to at least 95 percent of the Standard Proctor maximum dry density as determined by ASTM D-698 and 100 percent in the top 12 inches. Structural earth fill placed in non-structural/grassy areas should be compacted to at least 92 percent of the standard Proctor maximum dry density.

All structural fill material should be placed and compacted under the full-time control and supervision of a qualified geotechnical engineer or engineering technician working under the direction of the geotechnical engineer. The placement and compaction of all fill material should be



tested at frequent intervals in order to confirm that the recommended degree of compaction is achieved.

As previously stated, some of the on-site soils have sufficient clay content to render them moisture sensitive. The on-site soils will become unstable (i.e., pump and rut) during normal construction activities when in the presence of excess moisture. Soils with a moisture content greater than 3 percentage points above the optimum moisture content are generally considered to have excessive moisture. During earthwork and construction activities, surface-water runoff must be drained away from construction areas to prevent water from ponding on or saturating the soils within excavations or on subgrades.

Exposure to the environment may weaken the soils at the bearing level if excavations remain open for long periods of time. The bearing surfaces should be level or suitably-benched and free of loose soil, ponded water, and debris. If the bearing soils are softened by surface water intrusion, subsurface seepage or exposure, the softened soils should be removed from the excavation immediately prior to placement of stone, concrete, or other pipe bedding materials.

5.6 TEMPORARY EXCAVATION RECOMMENDATIONS

Mass excavations and other excavations required for construction of this project should be performed in accordance with the United States Department of Labor, Occupational Safety and Health Administration (OSHA) guidelines (29 CFR 1926, Subpart P, Excavations), or other applicable jurisdictional codes for permissible temporary side-slope ratios and/or shoring requirements. The OSHA guidelines require daily inspections of excavations, adjacent areas and protective systems by a “competent person” for evidence of situations that could result in cave-ins, indications of failure of a protective system, or other hazardous conditions. All excavated soils, equipment, building supplies, etc., should be placed away from the edges of excavations at a distance equaling or exceeding the depth of the excavation. F&R cautions that the actual excavation slopes will need to be evaluated frequently each day by the “competent person” and flatter slopes or the use of shoring may be required to maintain a safe excavation depending upon excavation-specific circumstances. The contractor is responsible for providing the “competent person” and all aspects of site excavation



safety. F&R can evaluate specific excavation slope situations if we are informed and requested by the owner, designer, or contractor's "competent person".

6.0 ENVIRONMENTAL ASSESSMENT

6.1 GROUNDWATER POINT INSTALLATION

In an effort to determine if groundwater has been adversely impacted in the area of the proposed stormwater system improvements, on February 21, 2023 borings B-3, B-4, and B-7 were converted into temporary monitoring wells TMW-1, TMW-2, and TMW-3, respectively. These locations were selected based on proximity to the stormwater pipe in question and were installed on the western side of the subject property. The approximate temporary monitoring well locations are shown on the Boring Location Plan presented as Figure No. 2 in Appendix I. Groundwater samples were collected at each location following the installation of the temporary monitoring wells (TMW) consisting of 1-inch PVC pipe with a 0.010 inch machine slotted screen installed from 10.0 to 20.0 feet below existing ground surface. The screened section was backfilled with filter sand in the boring annulus, then completed with a bentonite/grout seal to ground surface. TMW-1 and TMW-3 were advanced through grass or ABC stone covered areas to depths of 20.0 feet below existing ground surface. TMW-2 was advanced through an asphalt covered parking area to a depth of 20.0 feet below existing ground surface.

Following the groundwater sampling activities conducted on February 21, 2023, the temporary monitoring wells TMW-1, TMW-2, and TMW-3 were removed, the borings were backfilled with soil cuttings and/or bentonite, and the surface was patched with asphalt to closely match existing grades, as necessary.

After receiving the laboratory analytical results for the water sampling activities conducted on February 21, 2023, WK Dickson requested additional sampling of groundwater in the areas of TMW-1 and TMW-2, referred to as TMW-1a and TMW-2a and the installation of an additional temporary monitoring well located approximately 250 feet northwest of TMW-1/1a, labeled as TMW-4. These locations were sampled during F&R's return visit on May 4, 2023.



6.2 GROUNDWATER SAMPLING AND RESULTS

Following the temporary monitoring well installation, groundwater depths were measured with a water level meter. Groundwater was encountered within the temporary monitoring wells at depths ranging from 9.0 to 13.0 feet below existing ground surface. Prior to groundwater sample collection, at least three (3) well volumes of groundwater were purged to produce a representative groundwater sample from the underlying upper aquifer.

Groundwater was subsequently sampled using a peristaltic pump and polyethylene tubing or single use plastic bailers. Three (3) groundwater samples were initially collected, and three (3) additional groundwater samples were subsequently collected from the additional temporary monitoring wells discussed above. The samples were placed in laboratory-supplied sample containers, placed in a cooler with ice, and transported to Waypoint Analytical in Charlotte, North Carolina, following standard chain-of custody procedures. The samples were submitted for laboratory analysis of total petroleum hydrocarbons gasoline and diesel range organics (TPH-GRO and DRO) by EPA Method 8015C, VOCs by EPA Method 8260, SVOCs by EPA Method 8270, Total Alkalinity by method SM 2320B, pH by EPA Method 9040/9045, Salinity by method SM2520B, Chloride by method SM4500Cl E, Ammonia by method SM 4500 NH3/350.1, Nitrogen (Nitrate/Nitrite) by method SM 4500NO3F/353.2 and Total Phosphate by method SM 4500PE/365.4 .

Based on laboratory analytical results, several target compounds were detected at concentrations above laboratory method detection limits (MDLs). These compounds included multiple VOCs/SVOCs and pH above their respective NC 2L Groundwater Quality Standards (NC2LGWQS). The following table summarizes those concentrations:



Summary of Groundwater Regulatory Exceedances

Sample ID	Date Collected	EPA Method 8260	EPA Method 8270	SM-4500	
		MTBE ⁵	Bis (2-ethylhexyl) phthalate	pH	Ammonia Nitrogen
TMW-1	2/21/2023	95.6	6.48	4.7	50
TMW-2		1.61	5.73	5.4	80
TMW-3		ND	10.6	7.3	420
TMW-1a	5/4/2023	7.80	3.98	6.7	3,530
TMW-2a		1.41	7.93	5.6	40
TMW-4		6.51	ND	4.9	1,850
NC2L Groundwater Standard		20	3	6.5-8.5	1,500
Gross Contamination Regulatory Standard		20,000	135	NSE	NSE

1. Concentrations reported in µg/L
2. **BOLDED** results exceed their respective Residential or Commercial Regulatory Standard
3. ND = Not detected (below laboratory reporting limits)
4. NSE = No Standard Established
5. MTBE = Methyl Tert-Butyl Ether

The compounds detected above laboratory MDLs are presented in Table No. 1: Summary of Groundwater Analytical Results in Appendix III. The complete laboratory results and chain-of-custody are included in Appendix III.

6.3 STORMWATER COLLECTION

In an effort to determine if stormwater has been adversely impacting the integrity of the existing subsurface stormwater CMP which has caused premature corrosion, two (2) surface water samples (S-1 and S-2) and three (3) base flow stormwater manhole samples (MH-1, MH-2, and MH-3a) were collected. During sampling efforts on February 21, 2023, a sanitary sewer manhole was incorrectly sampled and submitted as MH-3. After locating the intended manhole during a follow-up visit on February 23, 2023, the sample was collected at the correct location and submitted as MH-3a. Surface Sample 1 (S-1) was collected at the western intake for the Greenville PW stormwater system. Manhole samples were collected from the stormwater system extending through the site from west to east and Surface Sample 2 (S-2) was collected from the eastern



outfall. These locations were selected by WK Dickson based on proximity to the stormwater pipe in question, and are shown on the Boring Location Plan presented as Figure No. 2 in Appendix I.

6.4 STORMWATER SAMPLING AND RESULTS

Stormwater was sampled using a peristaltic pump and polyethylene tubing or hand held bailers depending upon field conditions. The stormwater samples were collected in laboratory-supplied sample containers, placed in a cooler with ice, and transported to Waypoint Analytical in Charlotte, North Carolina, following standard chain-of custody procedures. Following collection, the three (3) stormwater and two (2) surface water samples were submitted for laboratory analysis TPH-GRO and DRO by EPA Method 8015C, VOCs by EPA Method 8260, SVOCs by EPA Method 8270, Total Alkalinity by method SM 2320B, pH by EPA Method 9040/9045, Salinity by method SM2520B, Chloride by method SM4500Cl E, Ammonia by method SM 4500 NH3/350.1, Nitrogen (Nitrate/Nitrite) by method SM 4500NO3F/353.2 and Total Phosphate by method SM 4500PE/365.4.

Based on laboratory analytical results, several target compounds were detected at concentrations above laboratory method detection limits (MDLs). As there is no standard for stormwater, the concentrations were compared to the NC2LGWQS or North Carolina Drinking Water Standards. These compounds included multiple SVOCs and pH that exceeded their respective NC regulatory standards. The following table summarizes those concentrations:



Summary of Stormwater Regulatory Exceedances

Sample ID	Date Collected	EPA Method 8270	SM-4500
		Bis (2-ethylhexyl) phthalate	pH
S-1	2/21/2023	ND	6.9
S-2		ND	6.4
MH-1	2/23/2023	ND	6.5
MH-2	2/21/2023	129	6.2
MH-3a	2/23/2023	ND	6.2
NC2L Groundwater Standard		3	6.5-8.5
Gross Contamination Regulatory Standard		170	NSE

1. Concentrations reported in µg/L
2. **BOLDED** results exceed their respective Residential or Commercial Regulatory Standard
3. ND = Not detected (below laboratory reporting limits)
4. NSE = No Standard Established

The full list of compounds detected above laboratory MDLs are presented in Table No. 1: Summary of Groundwater Analytical Results in Appendix III. Acetone was detected above the laboratory MDL; however, this is a common laboratory contaminant, and is not attributed to actual groundwater conditions. The complete laboratory results and chain-of-custody are included in Appendix III.

6.5 ENVIRONMENTAL CONCLUSIONS AND RECOMMENDATIONS

F&R has performed a Groundwater and Stormwater Assessment at the site based on planned improvements to the stormwater system. Several target compounds in the groundwater and stormwater were detected at concentrations above the applicable North Carolina 2L Groundwater Standards.



Based on the findings of the assessment, F&R presents the following conclusions and recommendations:

- Several compounds including VOCs, SVOCs, and pH exceeded the North Carolina 2L Groundwater Quality Standards at the Subject Property. Several compounds including Bis (2-ethylhexyl) phthalate and pH exceeded the North Carolina Standards at the Subject Property.
- While pH is below the acceptable range in the North Carolina Drinking Water and Surface Water standards, and this could increase the rate of degradation of the CMP, the levels are not significantly below the applicable range to account for the premature pipe degradation reported by the Client.
- The pH concentrations in groundwater samples TMW-1, TMW-2, TMW-2a, and TMW-4 were significantly below the North Carolina Drinking Water Standards. This could contribute to the degradation of the piping in this area where the piping is in contact with groundwater (encountered at depths ranging from approximately 9.0 to 13.0 feet below the ground surface).
- While it cannot be confirmed if the lowered pH levels in groundwater by TMW-1, TMW-2, TMW-2a, and TMW-4 are contributing to the pipe degradation; cathodic protection or pipe coating could help off-set any impacts the reduced pH in groundwater may be having on the pipe integrity.
- Elevated levels of Ammonia Nitrogen were detected in TMW-1a and TMW-4 during the May sampling. Ammonia Nitrogen is often used in fertilizers and recent spring fertilization of lawns and landscaping in the area may have contributed to this rise in the Ammonia Nitrogen levels.

7.0 CONTINUATION OF SERVICES

As previously discussed, a geotechnical engineer should be retained to monitor and test earthwork activities, and observe subgrade preparations for the proposed stormwater line and manholes. It should be noted that the actual soil conditions at the pipe and manhole bearing grades will vary across this site and thus the presence of the Geotechnical Engineer or their representative during construction will serve to validate the subsurface conditions and recommendations presented in this report.

A geotechnical engineer should be employed to monitor the earthwork and foundation construction, and to report that the recommendations contained in this report are completed in a



satisfactory manner. The continued geotechnical engineering involvement on the project will aid in the proper implementation of the recommendations discussed herein. The following is a recommended scope of services:

- Review of project plans and construction specifications to verify that the recommendations presented in this report have been properly interpreted and implemented;
- Observe the earthwork process to document that subsurface conditions encountered during construction are consistent with the conditions anticipated in this report;
- Observe the subgrade conditions before placing structural fill including proofroll observations;
- Observe the placement and compaction of any structural fill and backfill, and perform laboratory and field compaction testing of the fill.

8.0 LIMITATIONS

This report has been prepared for the exclusive use of WK Dickson and the Town of Greenville and/or their agents, for specific application to the referenced project in accordance with generally-accepted soil and foundation engineering and environmental practices. No other warranty, express or implied, is made. Our evaluations and recommendations are based on design information furnished to us; the data obtained from the previously-described, subsurface exploration program, and generally-accepted geotechnical and environmental engineering practice. The evaluations and recommendations do not reflect variations in subsurface conditions, which could exist intermediate of the boring locations or in unexplored areas of the site. As with any subsurface assessment, actual conditions exist only at the precise locations from which the samples were taken. Certain inferences are based on the results of sampling to form a professional opinion of conditions in areas beyond those from which the samples were taken.

There are important limitations to this and all geotechnical studies. Some of these limitations are discussed in the information prepared by GBA, which is included in Appendix IV. We ask that you please review this information.

Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions between borings will differ from those at the boring locations, that conditions are not as anticipated



by the designers, or that the construction process has altered the soil conditions. Therefore, experienced geotechnical engineers should evaluate earthwork, sewer line, and manhole construction to verify that the conditions anticipated in design actually exist. Otherwise, we assume no responsibility for construction compliance with the design concepts, specifications, or recommendations.

In the event that changes are made in the design or location of the proposed structures, the recommendations presented in the report shall not be considered valid unless the changes are reviewed by our firm and conclusions of this report modified and/or verified in writing. If this report is copied or transmitted to a third party, it must be copied or transmitted in its entirety, including text, attachments, and enclosures. Interpretations based on only a part of this report may not be valid.

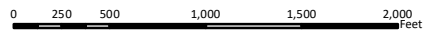


APPENDIX I

FIGURES



Site Vicinity Map



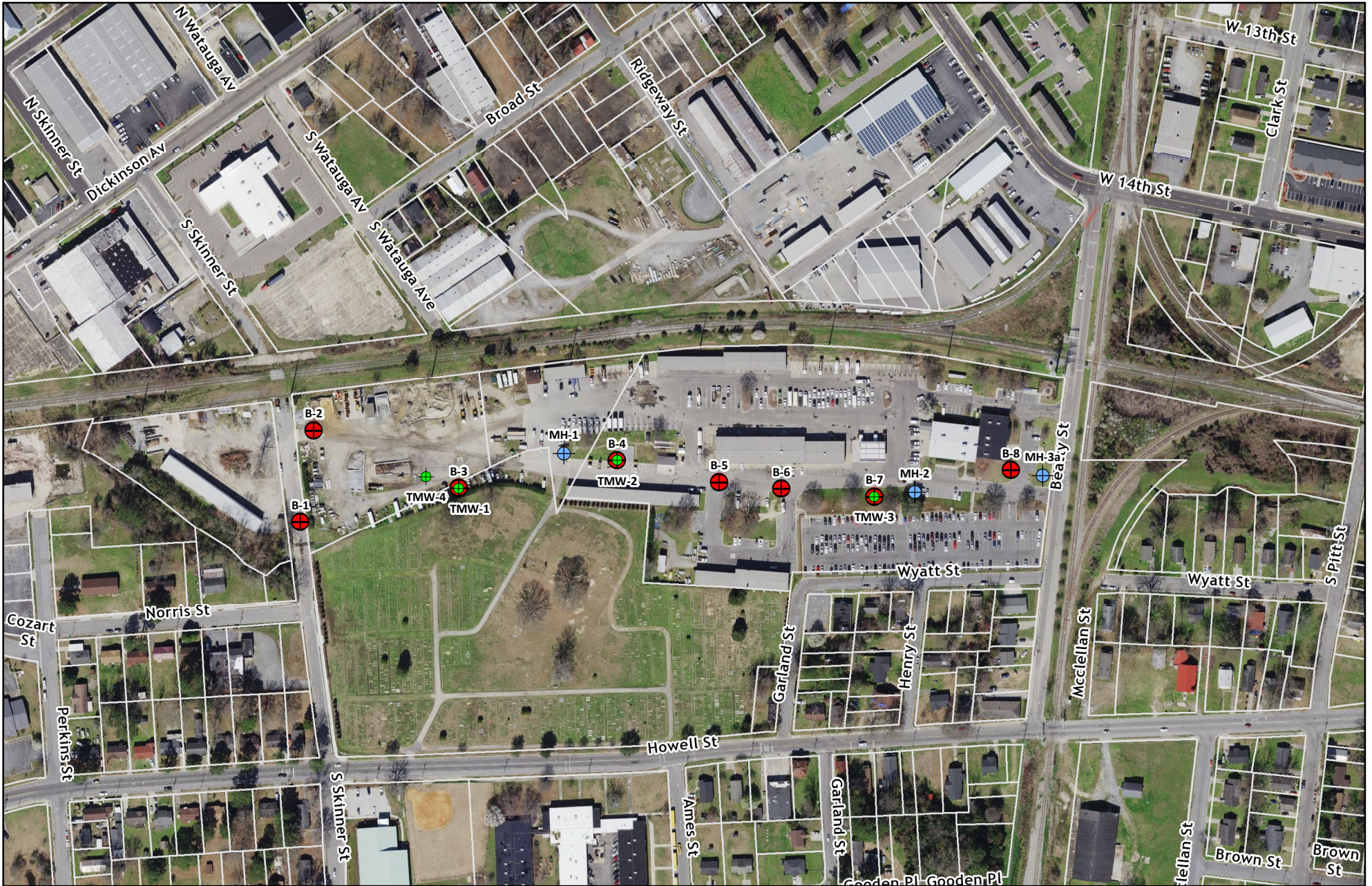
FROEHLING & ROBERTSON
Engineering Stability Since 1881

310 Hubert Street
Raleigh, North Carolina 27603
T 919.828.3441

Client:	W K Dickson & Company
Project:	Greenville PW Yard
Location:	Greenville, Pitt County, NC
Project Number:	66B-0006
Date:	Open Street
Date:	March 2023

FIGURE No.: 1

Scale: 1 inch = 1,000 feet



Boring Location Plan



FROEHLING & ROBERTSON
Engineering Stability Since 1881

310 Hubert Street
Raleigh, North Carolina 27603
T 919.828.3441

Client:	W K Dickson & Company	
Project:	Greenville PW Yard	
Location:	Greenville, Pitt County, NC	
Project Number:	66B-0006	
Data:	NCOne Map Parcel 2022/ Aerial 2020	
Date:	March 2023	Scale: 1 inch = 300 feet

FIGURE No.: 2



SUBSURFACE PROFILE

Plot Based on Elevation
Profile Name: Figure No. 3

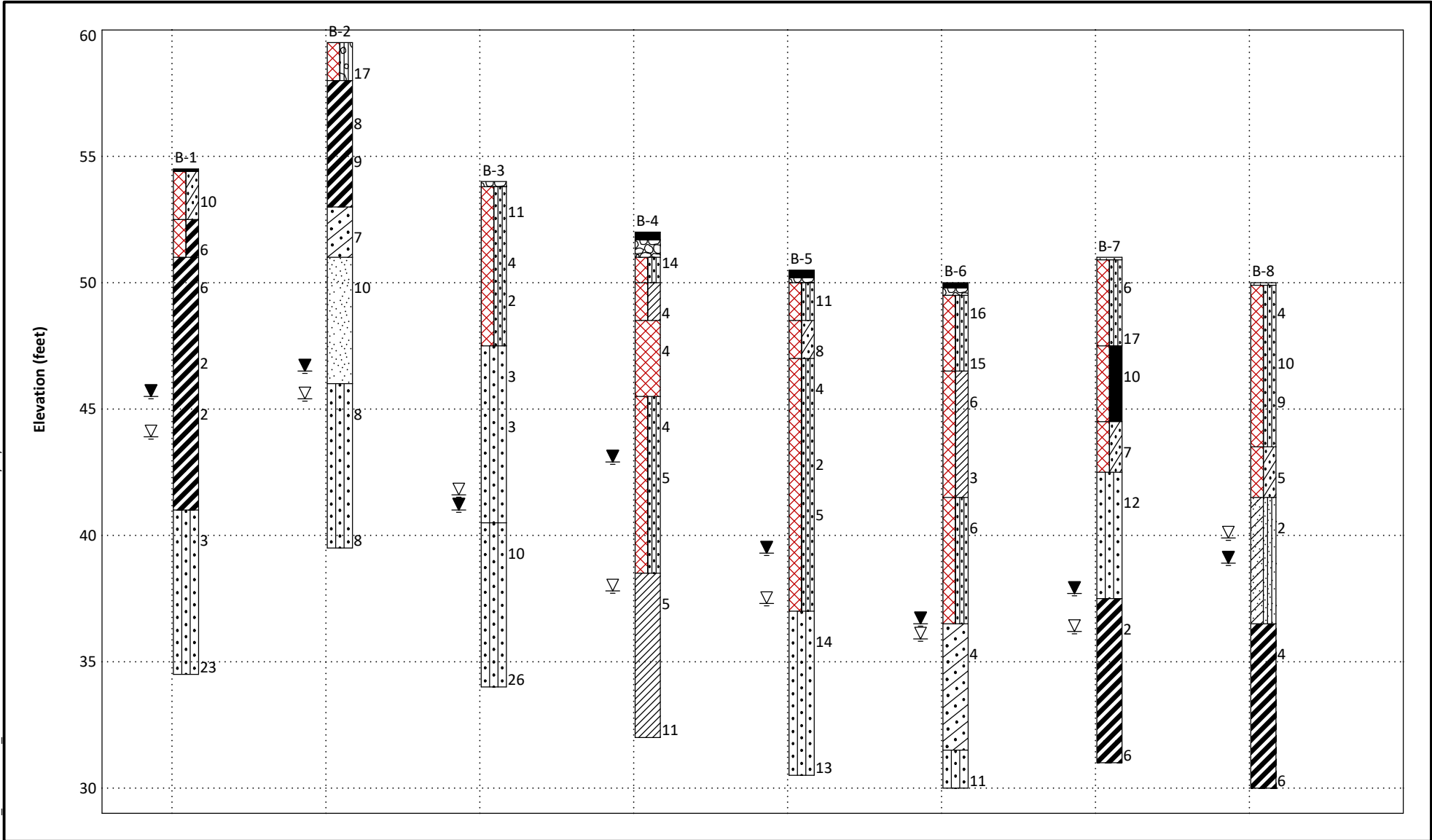
Project No: 66B-0006

Client: W K Dickson & Company

Project: Greenville PW Yard

City/State: Greenville, NC

ELEV_LANDSCAPE_8.5X11_66B-0006 BORING LOGS.GPJ F&R.GDT_3/21/23





APPENDIX II

BORING LOGS



KEY TO SOIL CLASSIFICATION

**Correlation of Penetration Resistance with
Relative Density and Consistency**

<u>Sands and Gravels</u>		<u>Silts and Clays</u>	
<u>No. of Blows, N</u>	<u>Relative Density</u>	<u>No. of Blows, N</u>	<u>Relative Density</u>
0 - 4	Very loose	0 - 2	Very soft
5 - 10	Loose	3 - 4	Soft
11 - 30	Medium dense	5 - 8	Firm
31 - 50	Dense	9 - 15	Stiff
Over 50	Very dense	16 - 30	Very stiff
		31 - 50	Hard
		Over 50	Very hard

**Particle Size Identification
(Unified Classification System)**

Boulders:	Diameter exceeds 8 inches
Cobbles:	3 to 8 inches diameter
Gravel:	<u>Coarse</u> - 3/4 to 3 inches diameter <u>Fine</u> - 4.76 mm to 3/4 inch diameter
Sand:	<u>Coarse</u> - 2.0 mm to 4.76 mm diameter <u>Medium</u> - 0.42 mm to 2.0 mm diameter <u>Fine</u> - 0.074 mm to 0.42 mm diameter
Silt and Clay:	Less than 0.07 mm (particles cannot be seen with naked eye)

Modifiers

The modifiers provide our estimate of the amount of silt, clay or sand size particles in the soil sample.

<u>Approximate Content</u>	<u>Modifiers</u>
≤ 5%:	Trace
5% to 12%:	Slightly silty, slightly clayey, slightly sandy
12% to 30%:	Silty, clayey, sandy
30% to 50%:	Very silty, very clayey, very sandy

<u>Field Moisture Description</u>	
Saturated:	Usually liquid; very wet, usually from below the groundwater table
Wet:	Semisolid; requires drying to attain optimum moisture
Moist:	Solid; at or near optimum moisture
Dry:	Requires additional water to attain optimum moisture

Ground Water

▽ Water Level in Bore Hole Immediately after Drilling

▼ Static Water Level after 24 Hours



UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

<i>MAJOR DIVISION</i>				<i>TYPICAL NAMES</i>
<i>GRAVELS</i> More than 50% of coarse fraction larger than No. 4 sieve	<i>CLEAN GRAVEL</i> (little or no fines)		GW	Well graded gravels
	<i>GRAVELS with fines</i>		GP	Poorly graded gravels
			GM	Silty gravels
		GC	Clayey gravels	
<i>SANDS</i> More than 50% of coarse fraction smaller than No. 4 sieve	<i>CLEAN SAND</i> (little or no fines)		SW	Well graded sands
	<i>SAND with fines</i>		SP	Poorly graded sands
			SM	Silty sands, sand/silt mixtures
		SC	Clayey sands, sand/clay mixtures	
<i>SILTS AND CLAYS</i> Liquid Limit is less than 50			ML	Inorganic silts, sandy and clayey silts with slightly plasticity
			CL	Sandy or silty clays of low to medium plasticity
			OL	Organic silts of low plasticity
<i>SILTS AND CLAYS</i> Liquid Limit is greater than 50			MH	Inorganic silts, sandy micaceous or clayey elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
<i>HIGHLY ORGANIC SOILS</i>			PT	Peat and other highly organic soils
<i>MISCELLANEOUS MATERIALS</i>				PWR (Partially Weathered Rock)
				Rock
				Asphalt
				ABC Stone
				Concrete
				Surficial Organic Soil



Project No: 66B-0006
Client: W K Dickson & Company
Project: Greenville PW Yard
City/State: Greenville, NC

Elevation: 54.5 ±
Total Depth: 20.0'
Boring Location: See Boring Location Plan

Drilling Method: 2.25" ID HSA
Hammer Type: Automatic
Date Drilled: 2/22/23
Driller: A. Sturchio

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	N-Value (blows/ft)	Remarks
54.4	0.1	ASPHALT	6-5-5	0.1		GROUNDWATER DATA: 0 Hr: 10.6' inside PVC 24 Hrs: 9.0' inside PVC
		FILL: Loose, Tan and Brown, Moist, Very Clayey Fine SAND (SC)		1.6	10	
52.5	2.0	Firm, Gray, Orange, and Brown, Moist, Fine Sandy Silty CLAY (CH), with Trace Fine Gravel	4-3-3	2.0	6	
51.0	3.5	COASTAL PLAIN: Very Soft to Firm, Orange, Red, and Tan to Gray and Black, Saturated, Fine Slightly Sandy Silty CLAY (CH)	4-3-3	3.5	6	
				5.0		
			1-1-1	6.5	2	
				8.0		
			1-1-1	8.5	2	
				10.0		
				13.5		
41.0	13.5	Very Loose to Medium Dense, Gray, Yellow, and Brown, Saturated, Slightly Clayey Silty Fine SAND (SM)	4-2-1	13.5	3	
				15.0		
			8-10-13	18.5	23	
34.5	20.0	Boring Terminated at 20.0 feet.				

BORING LOG 66B-0006 BORING LOGS.GPJ F&R.GDT 3/21/23

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



Project No: 66B-0006

Elevation: 59.5 ±

Drilling Method: 2.25" ID HSA

Client: W K Dickson & Company

Total Depth: 20.0'

Hammer Type: Automatic

Project: Greenville PW Yard

Boring Location: See Boring Location Plan

Date Drilled: 2/22/23

City/State: Greenville, NC

Driller: A. Sturchio

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	N-Value (blows/ft)	Remarks
58.0	1.5	FILL: Medium Dense, Tan and Gray, Moist, Fine to Coarse Sandy Silty Fine to Coarse GRAVEL (GM)	8-9-8	0.0	17	GROUNDWATER DATA: 0 Hr: 14.1' inside PVC 24 Hrs: 13.0' inside PVC
		COASTAL PLAIN: Firm to Stiff, Light Gray, Red, and Orange, Wet, Fine Slightly Sandy Silty CLAY (CH)	4-4-4	1.5		
4-4-5	3.5		9			
	5.0					
	6.5					
53.0	6.5	Loose, Red, Orange, and Tan, Moist, Silty Clayey Fine SAND (SC)	3-3-4	6.5	7	
51.0	8.5	Loose, White, Moist, Poorly Graded SAND (SP), with Trace Silt	5-6-4	8.0	10	
				8.5		
				10.0		
46.0	13.5	Loose, Red and Tan to Orange and Tan, Saturated, Silty Fine SAND (SM)	4-4-4	13.5	8	
				15.0		
			5-4-4	18.5		8
39.5	20.0	Boring Terminated at 20.0 feet.		20.0		

BORING LOG 66B-0006 BORING LOGS.GPJ F&R.GDT 3/21/23

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



Project No: 66B-0006
Client: W K Dickson & Company
Project: Greenville PW Yard
City/State: Greenville, NC

Elevation: 54 ±
Total Depth: 20.0'
Boring Location: See Boring Location Plan

Drilling Method: 2.25" ID HSA
Hammer Type: Automatic
Date Drilled: 2/20/23
Driller: A. Sturchio

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	N-Value (blows/ft)	Remarks	
53.8	0.2	ABC STONE	4-5-6	0.0		GROUNDWATER DATA: 0 Hr: 12.4' inside TMW-1 24 Hrs: 13.0' inside TMW-1 Boring Converted to TMW-1	
		FILL: Very Loose to Medium Dense, Light Gray and Black, Moist to Wet, Slightly Clayey Silty Fine SAND (SM), with Trace Roots (2.0'-3.5') and Fine to Coarse Asphalt Fragments (2.0'-3.5')		1.5	11		
			2-2-2	2.0	4		
		Wet (3.5'-6.5')	1-1-1	3.5	2		
				5.0			
47.5	6.5	COASTAL PLAIN: Very Loose, Yellow and Tan, Wet, Slightly Clayey Silty Fine SAND (SM)	1-1-2	6.5	3		
				8.0			
			2-1-2	8.5	3		
				10.0			
40.5	13.5	Loose to Medium Dense, White and Light Gray to Gray, Saturated, Silty Fine SAND (SM)	3-5-5	13.5	10		
				15.0			
			9-9-17	18.5	26		
34.0	20.0	Boring Terminated at 20.0 feet.					

BORING LOG 66B-0006 BORING LOGS.GPJ F&R.GDT 3/21/23

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



Project No: 66B-0006

Elevation: 52 ±

Drilling Method: 2.25" ID HSA

Client: W K Dickson & Company

Total Depth: 20.0'

Hammer Type: Automatic

Project: Greenville PW Yard

Boring Location: See Boring Location Plan

Date Drilled: 2/20/23

City/State: Greenville, NC

Driller: A. Sturchio

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	N-Value (blows/ft)	Remarks
51.7	0.3	ASPHALT	6-7-7	0.0		GROUNDWATER DATA: 0 Hr: 14.2' inside TMW-2 24 Hrs: 9.1' inside TMW-2 Boring Converted to TMW-2
51.0	1.0	ABC STONE			14	
		FILL: Medium Dense, Dark Gray, Moist, Slightly Clayey Silty Fine to Coarse SAND (SM), with Trace Fine Gravel and Trace Roots	5-3-1	1.5		
50.0	2.0			2.0		
		Soft, Dark Gray to Black, Wet, Fine to Coarse Sandy CLAY (CL), with Asphalt			4	
48.5	3.5	No Recovery	2-2-2	3.5		
					4	
				5.0		
45.5	6.5	Very Loose to Loose, Gray to Yellow and Tan, Wet to Saturated, Silty Fine to Coarse SAND (SM), with Trace Fine to Coarse Gravel and Asphalt (6.5'-8.5') and Trace Clay (6.5'-8.5')	2-2-2	6.5		
				8.0	4	
		Saturated (8.5'-13.5')	3-3-2	8.5		
					5	
				10.0		
38.5	13.5	COASTAL PLAIN: Firm to Stiff, Orange and Gray, Wet, Fine Very Sandy CLAY (CL)	3-3-2	13.5		
					5	
				15.0		
			3-4-7	18.5		
					11	
32.0	20.0	Boring Terminated at 20.0 feet.		20.0		

BORING LOG 66B-0006 BORING LOGS.GPJ F&R.GDT 3/21/23

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



Project No: 66B-0006

Elevation: 50.5 ±

Drilling Method: 2.25" ID HSA

Client: W K Dickson & Company

Total Depth: 20.0'

Hammer Type: Automatic

Project: Greenville PW Yard

Boring Location: See Boring Location Plan

Date Drilled: 2/21/23

City/State: Greenville, NC

Driller: A. Sturchio

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	N-Value (blows/ft)	Remarks
50.2	0.3	ASPHALT	5-5-6	0.0		GROUNDWATER DATA: 0 Hr: 13.2' inside PVC 24 Hrs: 11.2' inside PVC
50.0	0.5	ABC STONE			11	
		FILL: Medium Dense, Orange and Tan, Wet, Silty Fine to Coarse SAND (SM)		1.5		
48.5	2.0		4-4-4	2.0		
		Loose, Dark Gray and Black, Wet, Clayey Fine to Medium SAND (SC), with Fine to Coarse Gravel and Asphalt			8	
47.0	3.5		3-2-2	3.5		
		Very Loose to Loose, Light to Dark Gray, Orange, and Tan, Wet to Saturated, Silty Fine to Coarse SAND (SM), with Trace Clay (3.5'-8.5')			4	
		Trace Roots (6.5'-8.5')	1-1-1	6.5		
		Trace Asphalt and Saturated (8.5'-13.5)	1-2-3	8.5		
				10.0	5	
				13.5	14	
37.0	13.5	COASTAL PLAIN: Medium Dense, Gray, Yellow, and Tan, Saturated, Silty Fine to Coarse SAND (SM)	9-7-7	13.5		
				15.0		
			5-6-7	18.5		
30.5	20.0	Boring Terminated at 20.0 feet.		20.0	13	

BORING LOG 66B-0006 BORING LOGS.GPJ F&R.GDT 3/21/23

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



Project No: 66B-0006

Elevation: 50 ±

Drilling Method: 2.25" ID HSA

Client: W K Dickson & Company

Total Depth: 20.0'

Hammer Type: Automatic

Project: Greenville PW Yard

Boring Location: See Boring Location Plan

Date Drilled: 2/21/23

City/State: Greenville, NC

Driller: A. Sturchio

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	N-Value (blows/ft)	Remarks
49.8	0.2	ASPHALT	8-8-8	0.0		GROUNDWATER DATA: 0 Hr: 14.1' inside PVC 24 Hrs: 13.5' inside PVC
49.5	0.5	ABC STONE			16	
		FILL: Medium Dense, Gray and Black to Yellow and Tan, Moist, Silty Fine to Coarse SAND (SM), with Trace Fine Gravel and Asphalt (2.0'-3.5')	9-7-8	1.5		
				2.0		
					15	
46.5	3.5	POSSIBLE FILL: Soft to Firm, Light Gray to Dark Gray to Black, Wet to Saturated, Fine to Medium Very Sandy CLAY (CL), with Trace Roots (6.5'-8.0')	3-3-3	3.5		
				5.0	6	
		Saturated (6.5'-8.5')	1-1-2	6.5		
				8.0	3	
				8.5		
41.5	8.5	Loose, Light Gray, Wet, Slightly Clayey Silty Fine to Medium SAND (SM)	2-3-3	8.5		
				10.0	6	
36.5	13.5	COASTAL PLAIN: Very Loose, Dark Gray, Saturated, Very Clayey Fine to Coarse SAND (SC)	2-2-2	13.5		
				15.0	4	
31.5	18.5	Medium Dense, Dark Gray, Saturated, Slightly Silty Medium to Coarse SAND (SM)	5-5-6	18.5		
					11	
30.0	20.0	Boring Terminated at 20.0 feet.				

BORING LOG 66B-0006 BORING LOGS.GPJ F&R.GDT 3/21/23

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



Project No: 66B-0006
Client: W K Dickson & Company
Project: Greenville PW Yard
City/State: Greenville, NC

Elevation: 51 ±
Total Depth: 20.0'
Boring Location: See Boring Location Plan

Drilling Method: 2.25" ID HSA
Hammer Type: Automatic
Date Drilled: 2/21/23
Driller: A. Sturchio

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	N-Value (blows/ft)	Remarks	
50.9	0.1	SURFICIAL ORGANIC SOILS FILL: Loose to Medium Dense, Dark Gray and Brown to Orange and Tan, Moist, Slightly Clayey Silty Fine to Medium SAND (SM), with Fine Gravel (0.1'-1.5') and Trace Roots (2.0'-3.5')	3-3-3	0.0	6	GROUNDWATER DATA: 0 Hr: 14.8' inside TMW-3 24 Hrs: 13.3' inside TMW-3 Boring Converted to TMW-3	
			5-9-8	1.5			
				2.0			
47.5	3.5	CINDERS	5-5-5	3.5	10		
				5.0			
44.5	6.5	POSSIBLE FILL: Loose, Orange and Light Gray, Wet, Clayey Fine to Medium SAND (SC)	2-4-3	6.5	7		
				8.0			
42.5	8.5	COASTAL PLAIN: Medium Dense, Light Gray, Wet, Slightly Clayey Silty Fine to Medium SAND (SM)	9-6-6	8.5	12		
				10.0			
				13.5			
37.5	13.5	Very Soft to Firm, Dark Gray, Wet, Fine to Medium Sandy Very Silty CLAY (CH)	1-1-1	13.5	2		
				15.0			
				18.5			
31.0	20.0	Boring Terminated at 20.0 feet.			20.0	6	

BORING LOG 66B-0006 BORING LOGS.GPJ F&R.GDT 3/21/23

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



Project No: 66B-0006

Elevation: 50 ±

Drilling Method: 2.25" ID HSA

Client: W K Dickson & Company

Total Depth: 20.0'

Hammer Type: Automatic

Project: Greenville PW Yard

Boring Location: See Boring Location Plan

Date Drilled: 2/21/23

City/State: Greenville, NC

Driller: A. Sturchio

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	N-Value (blows/ft)	Remarks	
49.9	0.1	SURFICIAL ORGANIC SOILS FILL: Very Loose to Loose, Gray, Yellow, and Tan, Moist to Wet, Silty Fine to Medium SAND (SM) Wet (3.5'-6.5')	2-2-2	0.0	4	GROUNDWATER DATA: 0 Hr: 10.1' inside PVC 24 Hrs: 11.1' inside PVC	
				1.5			
			3-4-6	2.0			
			3-4-5	3.5			
				5.0			
43.5	6.5	Loose, Black, Yellow, and Tan, Wet, Clayey Fine to Medium SAND (SC)	4-3-2	6.5	5		
				8.0			
41.5	8.5	COASTAL PLAIN: Very Loose, Dark Gray to Black, Saturated, Silty Clayey Fine SAND (SC-SM), with Trace Organics	1-1-1	8.5	2		
				10.0			
				13.5			
36.5	13.5	Soft to Firm, Tan and Dark Gray, Wet, Fine Slightly Sandy Silty CLAY (CH)	2-2-2	13.5	4		
				15.0			
			2-3-3	18.5			
30.0	20.0	Boring Terminated at 20.0 feet.			20.0		

BORING LOG 66B-0006 BORING LOGS.GPJ F&R.GDT 3/21/23

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N-Value.



APPENDIX III

LAB RESULTS

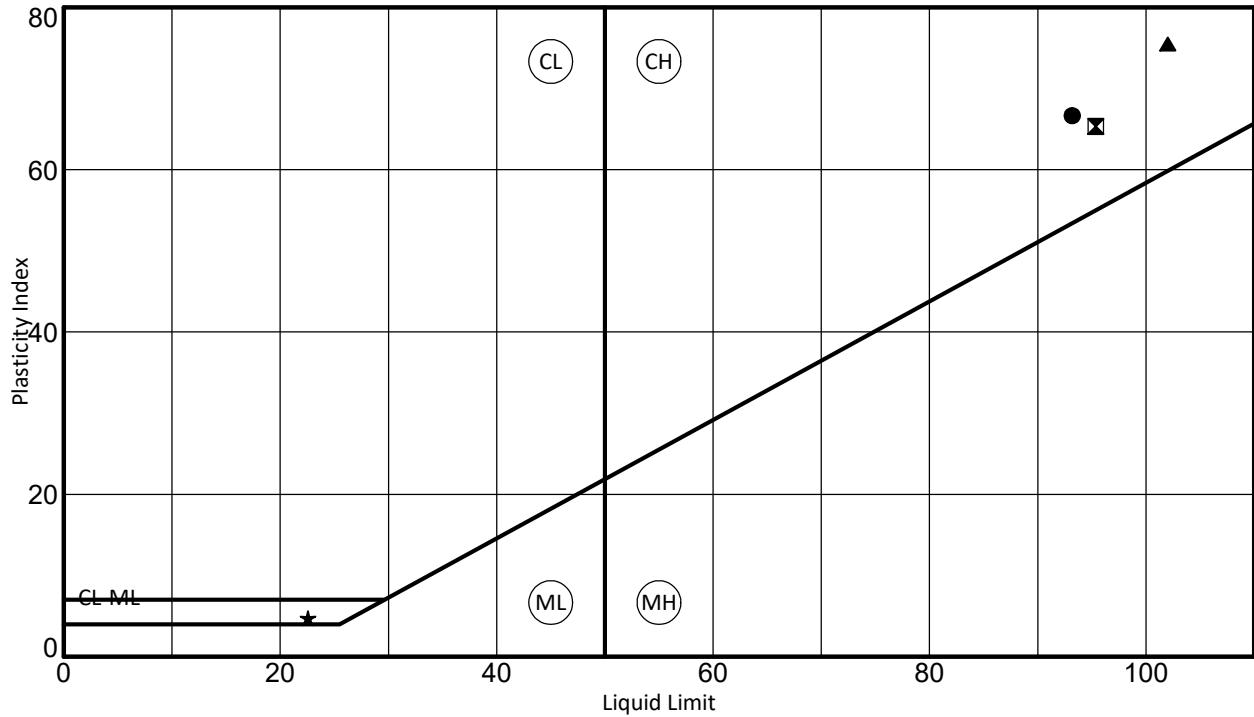


Project No: 66B-0006

Client: W K Dickson & Company

Project: Greenville PW Yard

City/State: Greenville, North Carolina



Sample No.	Boring No.	Depth	LL	PL	PI	Fines	Classification	% Natural Water Content
● S-4	B-1	6.5' - 8.0'	93	27	66	91.3	FAT CLAY (CH)	64.9
⊠ S-2 & S-3	B-2	2.0' - 5.0'	95	30	65	93.8	FAT CLAY (CH)	33.1
▲ S-6	B-6	13.5' - 15.0'	102	27	75	47.6	CLAYEY SAND (SC)	69.2
★ S-5	B-8	8.5' - 10.0'	23	18	5	35.3	SILTY CLAYEY SAND (SC-SM)	28.1

ATTERBERG_LIMITS_USCS_W/_LOCATION_66B-0006 - LAB TESTING.GPJ F&R.GDT_3/21/23



**Table 1 - Summary of Groundwater Analytical Results
Greenville PW Stormwater Improvements
Greenville, North Carolina
Project No.: 59B-0066**

Sample ID	Date Collected	EPA Method 8015C		EPA Method 8260								
		DRO	GRO	Acetone	Carbon Disulfide	Chloroform	Ethanol	MEK ¹	Di-Isopropyl Ether	1,2-Dichloroethane	MTBE ²	4-Methyl-2-Pentanone
TMW-1	2/21/2023	162	51.9	ND	ND	ND	ND	ND	5.22	0.554	95.6	ND
TMW-2		ND	ND	ND	ND	ND	ND	ND	ND	ND	1.61	ND
TMW-3		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TMW-1a	5/4/2023	179	ND	15.9	0.218	1.26	351	3.88	ND	ND	7.80	ND
TMW-2a		ND	ND	ND	ND	ND	ND	ND	ND	ND	1.41	ND
TMW-4		ND	ND	13.4	0.374	0.562	ND	2.16	ND	ND	6.51	2.43
NC2L Groundwater Standard		NSE	NSE	6,000	700	70	4,000	4,000	70	0.4	20	NSE
NC Gross Contamination Standard		NSE	NSE	6,000,000	590,000	70,000	4,000,000	4,000,000	70,000	400	20000	NSE

Groundwater Standards from the NCDEQ GWQS Dated April 2022

Compounds not listed were not detected above the laboratory method detection limits.

A complete list of target compounds is provided in the laboratory report

Bolded results exceed their NC2LGWQS Regulatory Standard

All results reported in µg/L

ND = Not detected (below laboratory reporting limits)

NSE = No Standard Established

¹ = Methyl Ethyl Ketone (MEK)

² = Methyl tert-butyl ether (MTBE)

³ = Alkalinity averages 20,000 - 200,000 µg/L per EPA Freshwater Standards

* There is no standard for total Nitrogen, the standard for Nitrate is 10,000 µg/L, and Nitrite is 1,000 µg/L



**Table 1 - Summary of Groundwater Analytical Results
Greenville PW Stormwater Improvements
Greenville, North Carolina
Project No.: 59B-0066**

Sample ID	Date Collected	EPA Method 8270				SM-4500		SM-2520B	300	353.2	365.4
		Benzoic Acid	Benzyl Alcohol	Bis (2-ethylhexyl) phthalate	3&4 Methylphenol	pH	Ammonia Nitrogen	Alkalinity ³	Chloride	Nitrate+ Nitrite-N	Phosphorous
TMW-1	2/21/2023	ND	ND	6.48	ND	4.7	50	2000	21,600	ND	ND
TMW-2		ND	ND	5.73	ND	5.4	80	15000	14,400	185	432
TMW-3		ND	ND	10.6	ND	7.3	420	49000	18,600	ND	511
TMW-1a	5/4/2023	3.55	1.61	3.98	2.62	6.7	3,530	152,000	24,900	137	ND
TMW-2a		ND	ND	7.93	ND	5.6	40	13,000	14,100	134	ND
TMW-4		ND	ND	ND	ND	4.9	1,850	9,000	75,600	105	ND
NC2L Groundwater Standard		30,000	700	3	NSE	6.5-8.5	1,500	NSE	250,000	NSE*	NSE
NC Gross Contamination Standard		17,000,000	7,000,000	135	NSE	NSE	NSE	NSE	NSE	NSE	NSE

Groundwater Standards from the NCDEQ GWQS Dated April 2022

Compounds not listed were not detected above the laboratory method detection limits.

A complete list of target compounds is provided in the laboratory report

Bolded results exceed their **Bolded** results exceed their NC2L GWQS Regulatory Standard

All results reported in µg/L

ND = Not detected (below laboratory reporting limits)

NSE = No Standard Established

¹ = Methyl Ethyl Ketone (MEK)

² = Methyl tert-butyl ether (MTBE)

³ = Alkalinity averages 20,000 - 200,000 µg/L per EPA Freshwater Standards

* There is no standard for total Nitrogen, the standard for Nitrate is 10,000 µg/L, and Nitrite is 1,000 µg/L



3/14/2023

F&R, Inc. - Charlotte
Brian Olin
3300 International Airport Dr., Suite 600
Charlotte, NC, 28208

Ref: Analytical Testing
Lab Report Number: 23-055-0102
Client Project Description: Greenville PW

Dear Brian Olin:

Waypoint Analytical, LLC (Charlotte) received sample(s) on 2/24/2023 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2021) unless otherwise indicated.

Certain parameters (chlorine, pH, dissolved oxygen, sulfite...) are required to be analyzed within 15 minutes of sampling. Usually, but not always, any field parameter analyzed at the laboratory is outside of this holding time. Refer to sample analysis time for confirmation of holding time compliance.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Angela D Overcash
Senior Project Manager

3/14/2023

F&R, Inc. - Charlotte
Brian Olin
3300 International Airport Dr., Suite 600
Charlotte, NC, 28208

Ref: Analytical Testing
Lab Report Number: 23-054-0100
Client Project Description: Greenville PW

Dear Brian Olin:

Waypoint Analytical, LLC (Charlotte) received sample(s) on 2/23/2023 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2021) unless otherwise indicated.

Certain parameters (chlorine, pH, dissolved oxygen, sulfite...) are required to be analyzed within 15 minutes of sampling. Usually, but not always, any field parameter analyzed at the laboratory is outside of this holding time. Refer to sample analysis time for confirmation of holding time compliance.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,



Angela D Overcash
Senior Project Manager

Certification Summary

Laboratory ID: WP CNC: Waypoint Analytical Carolina, Inc. (C), Charlotte, NC

State	Program	Lab ID	Expiration Date
North Carolina	State Program	37735	07/31/2023
North Carolina	State Program	402	12/31/2023
South Carolina	State Program	99012	07/31/2023
South Carolina	State Program	99012	12/31/2022

Laboratory ID: WP MTN: Waypoint Analytical, LLC., Memphis, TN

State	Program	Lab ID	Expiration Date
Alabama	State Program	40750	02/29/2024
Arkansas	State Program	88-0650	02/07/2024
California	State Program	2904	06/30/2023
Florida	State Program - NELAP	E871157	06/30/2023
Georgia	State Program	C044	11/14/2025
Georgia	State Program	04015	06/30/2023
Illinois	State Program - NELAP	200078	10/10/2023
Kentucky	State Program	80215	06/30/2023
Kentucky	State Program	KY90047	12/31/2023
Louisiana	State Program - NELAP	LA037	12/31/2023
Louisiana	State Program - NELAP	04015	06/30/2023
Mississippi	State Program	MS	02/11/2023
North Carolina	State Program	47701	07/31/2023
North Carolina	State Program	415	12/31/2023
Pennsylvania	State Program - NELAP	68-03195	05/31/2023
South Carolina	State Program	84002	06/30/2023
Tennessee	State Program	02027	11/14/2025
Texas	State Program - NELAP	T104704180	09/30/2023
Virginia	State Program	00106	06/30/2023
Virginia	State Program - NELAP	460181	09/14/2023

Sample Summary Table

Report Number: 23-054-0100

Client Project Description: Greenville PW

Lab No	Client Sample ID	Matrix	Date Collected	Date Received	Method	Lab ID
89450	S-1	Aqueous	02/21/2023 16:30	02/23/2023 11:00		
89450	S-1	Aqueous	02/21/2023 16:30	02/23/2023 11:00	2520B-2011	Env. 1
89450	S-1	Aqueous	02/21/2023 16:30	02/23/2023 11:00	365.4	WP MTN
89451	S-2	Aqueous	02/21/2023 15:45	02/23/2023 11:00		
89451	S-2	Aqueous	02/21/2023 15:45	02/23/2023 11:00	2520B-2011	Env. 1
89451	S-2	Aqueous	02/21/2023 15:45	02/23/2023 11:00	365.4	WP MTN
89452	MH-2	Aqueous	02/21/2023 08:58	02/23/2023 11:00		
89452	MH-2	Aqueous	02/21/2023 08:58	02/23/2023 11:00	2520B-2011	Env. 1
89452	MH-2	Aqueous	02/21/2023 08:58	02/23/2023 11:00	365.4	WP MTN
89453	TMW-1	Aqueous	02/21/2023 12:32	02/23/2023 11:00		
89453	TMW-1	Aqueous	02/21/2023 12:32	02/23/2023 11:00	2520B-2011	Env. 1
89453	TMW-1	Aqueous	02/21/2023 12:32	02/23/2023 11:00	365.4	WP MTN
89454	TMW-2	Aqueous	02/21/2023 13:15	02/23/2023 11:00		
89454	TMW-2	Aqueous	02/21/2023 13:15	02/23/2023 11:00	2520B-2011	Env. 1
89454	TMW-2	Aqueous	02/21/2023 13:15	02/23/2023 11:00	365.4	WP MTN
89455	TMW-3	Aqueous	02/21/2023 14:45	02/23/2023 11:00		
89455	TMW-3	Aqueous	02/21/2023 14:45	02/23/2023 11:00	2520B-2011	Env. 1
89455	TMW-3	Aqueous	02/21/2023 14:45	02/23/2023 11:00	365.4	WP MTN

Env. 1: Environment 1, Inc., Greenville, NC

WP MTN - Memphis, TN: Waypoint Analytical - TN, Memphis, TN

Summary of Detected Analytes

Project: Greenville PW

Report Number: 23-054-0100

Client Sample ID	Lab Sample ID	Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
S-1		V 89450						
2320B-2011			Alkalinity (as CaCO3)	56	mg/L	0.8	02/27/2023 09:45	
300.0			Chloride	13.1	mg/L	0.370	03/02/2023 17:43	
353.2			Nitrate+Nitrite-N	1.00	mg/L	0.044	03/01/2023 10:21	
4500H+B-2011			pH	6.9	s.u.		02/24/2023 09:56	H
4500-NH3G-2011			Ammonia Nitrogen	0.13	mg/L	0.04	03/13/2023 12:19	
S-2		V 89451						
2320B-2011			Alkalinity (as CaCO3)	45	mg/L	0.8	02/27/2023 09:45	
300.0			Chloride	19.3	mg/L	0.370	03/02/2023 17:58	
353.2			Nitrate+Nitrite-N	1.22	mg/L	0.044	03/01/2023 10:21	
4500H+B-2011			pH	6.4	s.u.		02/24/2023 09:56	H
4500-NH3G-2011			Ammonia Nitrogen	0.80	mg/L	0.04	02/27/2023 14:53	
8260D			Methyl tert-butyl ether (MTBE)	0.326	µg/L	0.140	02/25/2023 03:29	J
MH-2		V 89452						
2320B-2011			Alkalinity (as CaCO3)	43	mg/L	0.8	02/27/2023 09:45	
300.0			Chloride	18.2	mg/L	0.370	03/02/2023 18:14	
353.2			Nitrate+Nitrite-N	1.16	mg/L	0.044	03/01/2023 10:21	
4500H+B-2011			pH	6.2	s.u.		02/24/2023 09:56	H
4500-NH3G-2011			Ammonia Nitrogen	0.17	mg/L	0.04	03/13/2023 12:19	
8260D			Methyl tert-butyl ether (MTBE)	0.440	µg/L	0.140	02/25/2023 03:53	J
8270E			Bis(2-ethylhexyl)phthalate	129	µg/L	3.46	02/24/2023 18:17	
TMW-1		V 89453						
2320B-2011			Alkalinity (as CaCO3)	2	mg/L	0.8	02/27/2023 09:45	J
300.0			Chloride	21.6	mg/L	0.370	03/02/2023 18:30	
4500H+B-2011			pH	4.7	s.u.		02/24/2023 09:56	H
4500-NH3G-2011			Ammonia Nitrogen	0.05	mg/L	0.04	03/13/2023 12:19	J
8015C DRO			Diesel Range Organics (C10-C28)	162	µg/L	134	02/27/2023 17:41	J
8015C GRO			Gasoline Range Organics (C6-C10)	51.9	µg/L	38.0	02/24/2023 11:26	J
8260D			Di-Isopropyl Ether (DIPE)	5.22	µg/L	0.960	02/25/2023 04:17	
8260D			1,2-Dichloroethane	0.554	µg/L	0.150	02/25/2023 04:17	
8260D			Methyl tert-butyl ether (MTBE)	95.6	µg/L	0.140	02/25/2023 04:17	
8270E			Bis(2-ethylhexyl)phthalate	6.48	µg/L	3.46	02/24/2023 18:40	J
TMW-2		V 89454						
2320B-2011			Alkalinity (as CaCO3)	15	mg/L	0.8	02/27/2023 09:45	
300.0			Chloride	14.4	mg/L	0.370	02/28/2023 18:46	

Summary of Detected Analytes

Project: Greenville PW
Report Number: 23-054-0100

Client Sample ID	Lab Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
TMW-2	V 89454					
353.2	Nitrate+Nitrite-N	0.185	mg/L	0.044	03/01/2023 10:21	
365.4	Phosphorus	0.432	mg/L	0.212	03/02/2023 13:26	J
4500H+B-2011	pH	5.4	s.u.		02/24/2023 09:56	H
4500-NH3G-2011	Ammonia Nitrogen	0.08	mg/L	0.04	03/13/2023 12:19	J
8260D	Methyl tert-butyl ether (MTBE)	1.61	µg/L	0.140	02/25/2023 04:41	
8270E	Bis(2-ethylhexyl)phthalate	5.73	µg/L	3.46	02/24/2023 19:03	J
TMW-3	V 89455					
2320B-2011	Alkalinity (as CaCO3)	49	mg/L	0.8	02/27/2023 09:45	
300.0	Chloride	18.6	mg/L	0.370	02/28/2023 19:02	
365.4	Phosphorus	0.511	mg/L	0.212	03/02/2023 13:48	
4500H+B-2011	pH	7.3	s.u.		02/24/2023 09:56	H
4500-NH3G-2011	Ammonia Nitrogen	0.42	mg/L	0.04	02/27/2023 14:53	
8270E	Bis(2-ethylhexyl)phthalate	10.6	µg/L	3.46	02/24/2023 19:26	

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89450**

Sample ID : **S-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 16:30**

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	56	mg/L	0.8	5	1	02/27/23 09:45	SLO	2320B-2011
Ammonia Nitrogen	0.13	mg/L	0.04	0.10	1	03/13/23 12:19	CMJ	4500-NH3G-2011
Chloride	13.1	mg/L	0.370	1.00	1	03/02/23 17:43	CMJ	300.0
Nitrate+Nitrite-N	1.00	mg/L	0.044	0.100	1	03/01/23 10:21	CMJ	353.2
pH	6.9 H	s.u.			1	02/24/23 09:56	SMW	4500H+B-2011
Phosphorus	<0.212	mg/L	0.212	0.500	1	03/02/23 13:18	ANH	365.4

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89450**

Sample ID : **S-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 16:30**

Analytical Method: 8015C DRO

Prep Batch(es): **V30141** 02/27/23 09:08

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Diesel Range Organics (C10-C28)	<134	µg/L	134	500	1	02/27/23 19:06	AMP	V30177
Surrogate: OTP Surrogate	64.8		Limits: 50-150%		1	02/27/23 19:06	AMP	8015C DRO

Analytical Method: 8015C GRO

Prep Batch(es): **V30114** 02/24/23 08:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Gasoline Range Organics (C6-C10)	<38.0	µg/L	38.0	200	1	02/24/23 10:02	TBL	V30115
Surrogate: a,a,a-Trifluorotoluene	113		Limits: 57-132%		1	02/24/23 10:02	TBL	8015C GRO

Analytical Method: 8260D

Prep Batch(es): **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<1.80	µg/L	1.80	5.00	1	02/25/23 03:05	MSA	V30155
Acrolein	<2.00	µg/L	2.00	5.00	1	02/25/23 03:05	MSA	V30155
Acrylonitrile	<0.230	µg/L	0.230	5.00	1	02/25/23 03:05	MSA	V30155
Benzene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:05	MSA	V30155
Bromobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:05	MSA	V30155
Bromochloromethane	<0.420	µg/L	0.420	1.00	1	02/25/23 03:05	MSA	V30155
Bromodichloromethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:05	MSA	V30155
Bromoform	<1.50	µg/L	1.50	5.00	1	02/25/23 03:05	MSA	V30155
Bromomethane	<0.280	µg/L	0.280	1.00	1	02/25/23 03:05	MSA	V30155

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89450**

Sample ID : **S-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 16:30**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Butylbenzene	<0.185	µg/L	0.185	1.00	1	02/25/23 03:05	MSA	V30155
sec-Butyl benzene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:05	MSA	V30155
tert-Butyl benzene	<0.920	µg/L	0.920	2.00	1	02/25/23 03:05	MSA	V30155
Carbon Disulfide	<0.150	µg/L	0.150	5.00	1	02/25/23 03:05	MSA	V30155
Carbon Tetrachloride	<0.180	µg/L	0.180	0.500	1	02/25/23 03:05	MSA	V30155
Chlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:05	MSA	V30155
Chlorodibromomethane	<0.190	µg/L	0.190	0.500	1	02/25/23 03:05	MSA	V30155
Chloroethane	<0.430	µg/L	0.430	1.00	1	02/25/23 03:05	MSA	V30155
Chloroform	<0.220	µg/L	0.220	0.500	1	02/25/23 03:05	MSA	V30155
Chloromethane	<0.220	µg/L	0.220	0.500	1	02/25/23 03:05	MSA	V30155
2-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:05	MSA	V30155
4-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:05	MSA	V30155
Di-Isopropyl Ether (DIPE)	<0.960	µg/L	0.960	5.00	1	02/25/23 03:05	MSA	V30155
1,2-Dibromo-3-Chloropropane	<1.10	µg/L	1.10	2.00	1	02/25/23 03:05	MSA	V30155
1,2-Dibromoethane	<0.200	µg/L	0.200	0.500	1	02/25/23 03:05	MSA	V30155
Dibromomethane	<0.230	µg/L	0.230	0.500	1	02/25/23 03:05	MSA	V30155
1,2-Dichlorobenzene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:05	MSA	V30155
1,3-Dichlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:05	MSA	V30155
1,4-Dichlorobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:05	MSA	V30155
Dichlorodifluoromethane	<1.20	µg/L	1.20	5.00	1	02/25/23 03:05	MSA	V30155
1,1-Dichloroethane	<0.240	µg/L	0.240	0.500	1	02/25/23 03:05	MSA	V30155
1,2-Dichloroethane	<0.150	µg/L	0.150	0.500	1	02/25/23 03:05	MSA	V30155

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89450**

Sample ID : **S-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 16:30**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
1,1-Dichloroethene	<0.150	µg/L	0.150	0.500	1	02/25/23 03:05	MSA	V30155
cis-1,2-Dichloroethene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:05	MSA	V30155
trans-1,2-Dichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:05	MSA	V30155
1,2-Dichloropropane	<0.190	µg/L	0.190	0.500	1	02/25/23 03:05	MSA	V30155
1,3-Dichloropropane	<0.130	µg/L	0.130	0.500	1	02/25/23 03:05	MSA	V30155
2,2-Dichloropropane	<0.210	µg/L	0.210	2.00	1	02/25/23 03:05	MSA	V30155
1,1-Dichloropropene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:05	MSA	V30155
cis-1,3-Dichloropropene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:05	MSA	V30155
trans-1,3-Dichloropropene	<0.150	µg/L	0.150	0.500	1	02/25/23 03:05	MSA	V30155
Ethanol	<42.0	µg/L	42.0	200	1	02/28/23 19:50	MSA	V30291
Ethylbenzene	<0.170	µg/L	0.170	0.500	1	02/25/23 03:05	MSA	V30155
Ethyl Tertiary Butyl Ether (ETBE)	<1.80	µg/L	1.80	10.0	1	02/25/23 03:05	MSA	V30155
Hexachlorobutadiene	<0.350	µg/L	0.350	2.00	1	02/25/23 03:05	MSA	V30155
n-Hexane	<1.30	µg/L	1.30	10.0	1	02/25/23 03:05	MSA	V30155
2-Hexanone	<0.380	µg/L	0.380	5.00	1	02/25/23 03:05	MSA	V30155
Isopropylbenzene	<0.180	µg/L	0.180	5.00	1	02/25/23 03:05	MSA	V30155
4-Isopropyl toluene	<0.089	µg/L	0.089	0.500	1	02/25/23 03:05	MSA	V30155
Methyl Ethyl Ketone (MEK)	<0.710	µg/L	0.710	5.00	1	02/25/23 03:05	MSA	V30155
Methyl tert-butyl ether (MTBE)	<0.140	µg/L	0.140	0.500	1	02/25/23 03:05	MSA	V30155
4-Methyl-2-Pentanone	<1.00	µg/L	1.00	5.00	1	02/25/23 03:05	MSA	V30155
Methylene Chloride	<0.330	µg/L	0.330	1.00	1	02/25/23 03:05	MSA	V30155
Naphthalene	<0.470	µg/L	0.470	1.00	1	02/25/23 03:05	MSA	V30155

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89450**

Sample ID : **S-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 16:30**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Propylbenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:05	MSA	V30155
Styrene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:05	MSA	V30155
1,1,1,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:05	MSA	V30155
1,1,2,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:05	MSA	V30155
Tetrachloroethene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:05	MSA	V30155
Toluene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:05	MSA	V30155
1,2,3-Trichlorobenzene	<0.380	µg/L	0.380	2.00	1	02/25/23 03:05	MSA	V30155
1,2,4-Trichlorobenzene	<0.310	µg/L	0.310	1.00	1	02/25/23 03:05	MSA	V30155
1,1,1-Trichloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:05	MSA	V30155
1,1,2-Trichloroethane	<0.096	µg/L	0.096	0.500	1	02/25/23 03:05	MSA	V30155
Trichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:05	MSA	V30155
Trichlorofluoromethane	<0.180	µg/L	0.180	0.500	1	02/25/23 03:05	MSA	V30155
1,2,3-Trichloropropane	<0.270	µg/L	0.270	1.00	1	02/25/23 03:05	MSA	V30155
1,3,5-Trimethylbenzene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:05	MSA	V30155
Vinyl Acetate	<1.00	µg/L	1.00	2.00	1	02/25/23 03:05	MSA	V30155
Vinyl Chloride	<0.170	µg/L	0.170	0.500	1	02/25/23 03:05	MSA	V30155
o-Xylene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:05	MSA	V30155
m,p-Xylene	<0.420	µg/L	0.420	1.00	1	02/25/23 03:05	MSA	V30155

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : 23-054-0100

REPORT OF ANALYSIS

Lab No : 89450

Sample ID : S-1

Matrix: Aqueous

Sampled: 2/21/2023 16:30

Analytical Method: 8260D **Prep Batch(es):** V30154 02/24/23 14:00 V30290 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Xylene (Total)	<0.21	µg/L	0.210	0.500	1	02/25/23 03:05		V30155
Surrogate: 4-Bromofluorobenzene	95.4		Limits: 80-124%		1	02/25/23 03:05	MSA	V30155
Surrogate: Dibromofluoromethane	90.2		Limits: 75-129%		1	02/25/23 03:05	MSA	V30155
Surrogate: 1,2-Dichloroethane - d4	83.6		Limits: 63-136%		1	02/25/23 03:05	MSA	V30155
Surrogate: Toluene-d8	95.4		Limits: 77-123%		1	02/25/23 03:05	MSA	V30155
Surrogate: 4-Bromofluorobenzene	101		Limits: 80-124%		1	02/28/23 19:50	MSA	V30291
Surrogate: Dibromofluoromethane	100		Limits: 75-129%		1	02/28/23 19:50	MSA	V30291
Surrogate: 1,2-Dichloroethane - d4	94.6		Limits: 63-136%		1	02/28/23 19:50	MSA	V30291
Surrogate: Toluene-d8	99.6		Limits: 77-123%		1	02/28/23 19:50	MSA	V30291

Analytical Method: 8270E **Prep Batch(es):** V30094 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acenaphthene	<0.323	µg/L	0.323	2.14	1	02/24/23 17:30	JMV	V30175
Acenaphthylene	<0.317	µg/L	0.317	2.14	1	02/24/23 17:30	JMV	V30175
Aniline	<2.19	µg/L	2.19	5.35	1	02/24/23 17:30	JMV	V30175
Anthracene	<0.894	µg/L	0.894	2.14	1	02/24/23 17:30	JMV	V30175
Benzo(a)anthracene	<0.681	µg/L	0.681	2.14	1	02/24/23 17:30	JMV	V30175
Benzo(a)pyrene	<1.09	µg/L	1.09	2.14	1	02/24/23 17:30	JMV	V30175
Benzo(b)fluoranthene	<2.66	µg/L	2.66	5.35	1	02/24/23 17:30	JMV	V30175
Benzo(g,h,i)perylene	<1.08	µg/L	1.08	5.35	1	02/24/23 17:30	JMV	V30175
Benzo(k)fluoranthene	<2.13	µg/L	2.13	5.35	1	02/24/23 17:30	JMV	V30175

Qualifiers/Definitions DF Dilution Factor H Beyond holding time
J Estimated value MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89450**

Sample ID : **S-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 16:30**

Analytical Method: 8270E

Prep Batch(es): **V30094** 02/24/23 09:01

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Benzoic Acid	<1.18	µg/L	1.18	10.7	1	02/24/23 17:30	JMV	V30175
Benzyl alcohol	<0.731	µg/L	0.731	5.35	1	02/24/23 17:30	JMV	V30175
Bis(2-Chloroethoxy)methane	<0.500	µg/L	0.500	5.35	1	02/24/23 17:30	JMV	V30175
Bis(2-Chloroethyl)ether	<1.11	µg/L	1.11	5.35	1	02/24/23 17:30	JMV	V30175
Bis(2-Chloroisopropyl)ether	<1.16	µg/L	1.16	5.35	1	02/24/23 17:30	JMV	V30175
Bis(2-ethylhexyl)phthalate	<3.70	µg/L	3.70	10.7	1	02/24/23 17:30	JMV	V30175
4-Bromophenyl phenyl ether	<1.19	µg/L	1.19	5.35	1	02/24/23 17:30	JMV	V30175
Butyl benzyl phthalate	<1.96	µg/L	1.96	5.35	1	02/24/23 17:30	JMV	V30175
4-Chloro-3-methylphenol	<1.26	µg/L	1.26	5.35	1	02/24/23 17:30	JMV	V30175
4-Chloroaniline	<1.42	µg/L	1.42	5.35	1	02/24/23 17:30	JMV	V30175
2-Chloronaphthalene	<1.96	µg/L	1.96	21.4	1	02/24/23 17:30	JMV	V30175
2-Chlorophenol	<1.00	µg/L	1.00	10.7	1	02/24/23 17:30	JMV	V30175
4-Chlorophenyl phenyl ether	<1.83	µg/L	1.83	5.35	1	02/24/23 17:30	JMV	V30175
Chrysene	<0.433	µg/L	0.433	2.14	1	02/24/23 17:30	JMV	V30175
Dibenz(a,h)anthracene	<0.464	µg/L	0.464	2.14	1	02/24/23 17:30	JMV	V30175
Dibenzofuran	<0.915	µg/L	0.915	5.35	1	02/24/23 17:30	JMV	V30175
1,2-Dichlorobenzene	<2.14	µg/L	2.14	5.35	1	02/24/23 17:30	JMV	V30175
1,3-Dichlorobenzene	<2.14	µg/L	2.14	5.35	1	02/24/23 17:30	JMV	V30175
1,4-Dichlorobenzene	<2.19	µg/L	2.19	5.35	1	02/24/23 17:30	JMV	V30175
3,3'-Dichlorobenzidine	<2.02	µg/L	2.02	5.35	1	02/24/23 17:30	JMV	V30175
2,4-Dichlorophenol	<1.56	µg/L	1.56	10.7	1	02/24/23 17:30	JMV	V30175
Diethyl phthalate	<0.797	µg/L	0.797	5.35	1	02/24/23 17:30	JMV	V30175

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89450**

Sample ID : **S-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 16:30**

Analytical Method: 8270E

Prep Batch(es): **V30094** 02/24/23 09:01

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Dimethyl phthalate	<1.00	µg/L	1.00	5.35	1	02/24/23 17:30	JMV	V30175
2,4-Dimethylphenol	<1.68	µg/L	1.68	21.4	1	02/24/23 17:30	JMV	V30175
Di-n-butyl phthalate	<2.20	µg/L	2.20	5.35	1	02/24/23 17:30	JMV	V30175
4,6-Dinitro-2-methylphenol	<2.21	µg/L	2.21	10.7	1	02/24/23 17:30	JMV	V30175
2,4-Dinitrophenol	<2.05	µg/L	2.05	10.7	1	02/24/23 17:30	JMV	V30175
2,4-Dinitrotoluene	<1.19	µg/L	1.19	5.35	1	02/24/23 17:30	JMV	V30175
2,6-Dinitrotoluene	<0.865	µg/L	0.865	5.35	1	02/24/23 17:30	JMV	V30175
Di-n-Octyl Phthalate	<1.77	µg/L	1.77	5.35	1	02/24/23 17:30	JMV	V30175
Fluoranthene	<0.267	µg/L	0.267	2.14	1	02/24/23 17:30	JMV	V30175
Fluorene	<0.863	µg/L	0.863	2.14	1	02/24/23 17:30	JMV	V30175
Hexachlorobenzene	<1.05	µg/L	1.05	5.35	1	02/24/23 17:30	JMV	V30175
Hexachlorobutadiene	<2.92	µg/L	2.92	5.35	1	02/24/23 17:30	JMV	V30175
Hexachlorocyclopentadiene	<2.19	µg/L	2.19	5.35	1	02/24/23 17:30	JMV	V30175
Hexachloroethane	<1.88	µg/L	1.88	5.35	1	02/24/23 17:30	JMV	V30175
Indeno(1,2,3-cd)pyrene	<0.510	µg/L	0.510	2.14	1	02/24/23 17:30	JMV	V30175
Isophorone	<0.475	µg/L	0.475	5.35	1	02/24/23 17:30	JMV	V30175
1-Methylnaphthalene	<1.22	µg/L	1.22	2.14	1	02/24/23 17:30	JMV	V30175
2-Methylnaphthalene	<0.712	µg/L	0.712	2.14	1	02/24/23 17:30	JMV	V30175
2-Methylphenol	<1.23	µg/L	1.23	5.35	1	02/24/23 17:30	JMV	V30175
3&4 Methylphenol	<0.941	µg/L	0.941	10.7	1	02/24/23 17:30	JMV	V30175
Naphthalene	<0.778	µg/L	0.778	2.14	1	02/24/23 17:30	JMV	V30175
2-Nitroaniline	<1.49	µg/L	1.49	5.35	1	02/24/23 17:30	JMV	V30175

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : 23-054-0100

REPORT OF ANALYSIS

Lab No : 89450

Sample ID : S-1

Matrix: Aqueous

Sampled: 2/21/2023 16:30

Analytical Method: 8270E Prep Batch(es): V30094 02/24/23 09:01
 Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
3-Nitroaniline	<1.49	µg/L	1.49	5.35	1	02/24/23 17:30	JMV	V30175
4-Nitroaniline	<1.64	µg/L	1.64	5.35	1	02/24/23 17:30	JMV	V30175
Nitrobenzene	<0.968	µg/L	0.968	5.35	1	02/24/23 17:30	JMV	V30175
2-Nitrophenol	<0.527	µg/L	0.527	5.35	1	02/24/23 17:30	JMV	V30175
4-Nitrophenol	<1.32	µg/L	1.32	10.7	1	02/24/23 17:30	JMV	V30175
N-Nitrosodimethylamine	<0.481	µg/L	0.481	5.35	1	02/24/23 17:30	JMV	V30175
N-Nitrosodiphenylamine	<1.18	µg/L	1.18	5.35	1	02/24/23 17:30	JMV	V30175
N-Nitroso-di-n-propylamine	<0.685	µg/L	0.685	5.35	1	02/24/23 17:30	JMV	V30175
Pentachlorophenol	<1.53	µg/L	1.53	5.35	1	02/24/23 17:30	JMV	V30175
Phenanthrene	<0.457	µg/L	0.457	2.14	1	02/24/23 17:30	JMV	V30175
Phenol	<0.696	µg/L	0.696	5.35	1	02/24/23 17:30	JMV	V30175
Pyrene	<0.464	µg/L	0.464	2.14	1	02/24/23 17:30	JMV	V30175
1,2,4-Trichlorobenzene	<2.36	µg/L	2.36	5.35	1	02/24/23 17:30	JMV	V30175
2,4,5-Trichlorophenol	<1.40	µg/L	1.40	5.35	1	02/24/23 17:30	JMV	V30175
2,4,6-Trichlorophenol	<1.41	µg/L	1.41	5.35	1	02/24/23 17:30	JMV	V30175
Surrogate: Phenol-d5	27.7		Limits: 11-100%		1	02/24/23 17:30	JMV	8270E
Surrogate: 2-Fluorobiphenyl	79.8		Limits: 44-119%		1	02/24/23 17:30	JMV	V30175
Surrogate: 2-Fluorophenol	42.7		Limits: 19-119%		1	02/24/23 17:30	JMV	V30175
Surrogate: Nitrobenzene-d5	70.1		Limits: 44-120%		1	02/24/23 17:30	JMV	V30175
Surrogate: 4-Terphenyl-d14	104		Limits: 50-134%		1	02/24/23 17:30	JMV	V30175
Surrogate: 2,4,6-Tribromophenol	76.6		Limits: 43-140%		1	02/24/23 17:30	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Sample ID : **S-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 15:45**

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	45	mg/L	0.8	5	1	02/27/23 09:45	SLO	2320B-2011
Ammonia Nitrogen	0.80	mg/L	0.04	0.10	1	02/27/23 14:53	CMJ	4500-NH3G-2011
Chloride	19.3	mg/L	0.370	1.00	1	03/02/23 17:58	CMJ	300.0
Nitrate+Nitrite-N	1.22	mg/L	0.044	0.100	1	03/01/23 10:21	CMJ	353.2
pH	6.4 H	s.u.			1	02/24/23 09:56	SMW	4500H+B-2011
Phosphorus	<0.212	mg/L	0.212	0.500	1	03/02/23 13:20	ANH	365.4

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Matrix: **Aqueous**

Sample ID : **S-2**

Sampled: **2/21/2023 15:45**

Analytical Method: 8015C DRO

Prep Batch(es): **V30141** 02/27/23 09:08

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Diesel Range Organics (C10-C28)	<135	µg/L	135	503	1	02/27/23 18:45	AMP	V30177
Surrogate: OTP Surrogate	73.1		Limits: 50-150%		1	02/27/23 18:45	AMP	8015C DRO

Analytical Method: 8015C GRO

Prep Batch(es): **V30114** 02/24/23 08:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Gasoline Range Organics (C6-C10)	<38.0	µg/L	38.0	200	1	02/24/23 10:30	TBL	V30115
Surrogate: a,a,a-Trifluorotoluene	101		Limits: 57-132%		1	02/24/23 10:30	TBL	8015C GRO

Analytical Method: 8260D

Prep Batch(es): **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<1.80	µg/L	1.80	5.00	1	02/25/23 03:29	MSA	V30155
Acrolein	<2.00	µg/L	2.00	5.00	1	02/25/23 03:29	MSA	V30155
Acrylonitrile	<0.230	µg/L	0.230	5.00	1	02/25/23 03:29	MSA	V30155
Benzene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:29	MSA	V30155
Bromobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:29	MSA	V30155
Bromochloromethane	<0.420	µg/L	0.420	1.00	1	02/25/23 03:29	MSA	V30155
Bromodichloromethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:29	MSA	V30155
Bromoform	<1.50	µg/L	1.50	5.00	1	02/25/23 03:29	MSA	V30155
Bromomethane	<0.280	µg/L	0.280	1.00	1	02/25/23 03:29	MSA	V30155

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Sample ID : **S-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 15:45**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Butylbenzene	<0.185	µg/L	0.185	1.00	1	02/25/23 03:29	MSA	V30155
sec-Butyl benzene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:29	MSA	V30155
tert-Butyl benzene	<0.920	µg/L	0.920	2.00	1	02/25/23 03:29	MSA	V30155
Carbon Disulfide	<0.150	µg/L	0.150	5.00	1	02/25/23 03:29	MSA	V30155
Carbon Tetrachloride	<0.180	µg/L	0.180	0.500	1	02/25/23 03:29	MSA	V30155
Chlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:29	MSA	V30155
Chlorodibromomethane	<0.190	µg/L	0.190	0.500	1	02/25/23 03:29	MSA	V30155
Chloroethane	<0.430	µg/L	0.430	1.00	1	02/25/23 03:29	MSA	V30155
Chloroform	<0.220	µg/L	0.220	0.500	1	02/25/23 03:29	MSA	V30155
Chloromethane	<0.220	µg/L	0.220	0.500	1	02/25/23 03:29	MSA	V30155
2-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:29	MSA	V30155
4-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:29	MSA	V30155
Di-Isopropyl Ether (DIPE)	<0.960	µg/L	0.960	5.00	1	02/25/23 03:29	MSA	V30155
1,2-Dibromo-3-Chloropropane	<1.10	µg/L	1.10	2.00	1	02/25/23 03:29	MSA	V30155
1,2-Dibromoethane	<0.200	µg/L	0.200	0.500	1	02/25/23 03:29	MSA	V30155
Dibromomethane	<0.230	µg/L	0.230	0.500	1	02/25/23 03:29	MSA	V30155
1,2-Dichlorobenzene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:29	MSA	V30155
1,3-Dichlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:29	MSA	V30155
1,4-Dichlorobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:29	MSA	V30155
Dichlorodifluoromethane	<1.20	µg/L	1.20	5.00	1	02/25/23 03:29	MSA	V30155
1,1-Dichloroethane	<0.240	µg/L	0.240	0.500	1	02/25/23 03:29	MSA	V30155
1,2-Dichloroethane	<0.150	µg/L	0.150	0.500	1	02/25/23 03:29	MSA	V30155

Qualifiers/ Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

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Brian Olin

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Sample ID : **S-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 15:45**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
1,1-Dichloroethene	<0.150	µg/L	0.150	0.500	1	02/25/23 03:29	MSA	V30155
cis-1,2-Dichloroethene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:29	MSA	V30155
trans-1,2-Dichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:29	MSA	V30155
1,2-Dichloropropane	<0.190	µg/L	0.190	0.500	1	02/25/23 03:29	MSA	V30155
1,3-Dichloropropane	<0.130	µg/L	0.130	0.500	1	02/25/23 03:29	MSA	V30155
2,2-Dichloropropane	<0.210	µg/L	0.210	2.00	1	02/25/23 03:29	MSA	V30155
1,1-Dichloropropene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:29	MSA	V30155
cis-1,3-Dichloropropene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:29	MSA	V30155
trans-1,3-Dichloropropene	<0.150	µg/L	0.150	0.500	1	02/25/23 03:29	MSA	V30155
Ethanol	<42.0	µg/L	42.0	200	1	02/28/23 20:17	MSA	V30291
Ethylbenzene	<0.170	µg/L	0.170	0.500	1	02/25/23 03:29	MSA	V30155
Ethyl Tertiary Butyl Ether (ETBE)	<1.80	µg/L	1.80	10.0	1	02/25/23 03:29	MSA	V30155
Hexachlorobutadiene	<0.350	µg/L	0.350	2.00	1	02/25/23 03:29	MSA	V30155
n-Hexane	<1.30	µg/L	1.30	10.0	1	02/25/23 03:29	MSA	V30155
2-Hexanone	<0.380	µg/L	0.380	5.00	1	02/25/23 03:29	MSA	V30155
Isopropylbenzene	<0.180	µg/L	0.180	5.00	1	02/25/23 03:29	MSA	V30155
4-Isopropyl toluene	<0.089	µg/L	0.089	0.500	1	02/25/23 03:29	MSA	V30155
Methyl Ethyl Ketone (MEK)	<0.710	µg/L	0.710	5.00	1	02/25/23 03:29	MSA	V30155
Methyl tert-butyl ether (MTBE)	0.326 J	µg/L	0.140	0.500	1	02/25/23 03:29	MSA	V30155
4-Methyl-2-Pentanone	<1.00	µg/L	1.00	5.00	1	02/25/23 03:29	MSA	V30155
Methylene Chloride	<0.330	µg/L	0.330	1.00	1	02/25/23 03:29	MSA	V30155
Naphthalene	<0.470	µg/L	0.470	1.00	1	02/25/23 03:29	MSA	V30155

Qualifiers/ Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Sample ID : **S-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 15:45**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Propylbenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:29	MSA	V30155
Styrene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:29	MSA	V30155
1,1,1,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:29	MSA	V30155
1,1,2,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:29	MSA	V30155
Tetrachloroethene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:29	MSA	V30155
Toluene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:29	MSA	V30155
1,2,3-Trichlorobenzene	<0.380	µg/L	0.380	2.00	1	02/25/23 03:29	MSA	V30155
1,2,4-Trichlorobenzene	<0.310	µg/L	0.310	1.00	1	02/25/23 03:29	MSA	V30155
1,1,1-Trichloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:29	MSA	V30155
1,1,2-Trichloroethane	<0.096	µg/L	0.096	0.500	1	02/25/23 03:29	MSA	V30155
Trichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:29	MSA	V30155
Trichlorofluoromethane	<0.180	µg/L	0.180	0.500	1	02/25/23 03:29	MSA	V30155
1,2,3-Trichloropropane	<0.270	µg/L	0.270	1.00	1	02/25/23 03:29	MSA	V30155
1,3,5-Trimethylbenzene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:29	MSA	V30155
Vinyl Acetate	<1.00	µg/L	1.00	2.00	1	02/25/23 03:29	MSA	V30155
Vinyl Chloride	<0.170	µg/L	0.170	0.500	1	02/25/23 03:29	MSA	V30155
o-Xylene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:29	MSA	V30155
m,p-Xylene	<0.420	µg/L	0.420	1.00	1	02/25/23 03:29	MSA	V30155

Qualifiers/ Definitions	DF	Dilution Factor Estimated value	H	Beyond holding time
	J		MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Sample ID : **S-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 15:45**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Xylene (Total)	<0.21	µg/L	0.210	0.500	1	02/25/23 03:29		V30155
Surrogate: 4-Bromofluorobenzene	93.4		Limits: 80-124%		1	02/25/23 03:29	MSA	V30155
Surrogate: Dibromofluoromethane	90.8		Limits: 75-129%		1	02/25/23 03:29	MSA	V30155
Surrogate: 1,2-Dichloroethane - d4	84.2		Limits: 63-136%		1	02/25/23 03:29	MSA	V30155
Surrogate: Toluene-d8	94.8		Limits: 77-123%		1	02/25/23 03:29	MSA	V30155
Surrogate: 4-Bromofluorobenzene	99.4		Limits: 80-124%		1	02/28/23 20:17	MSA	V30291
Surrogate: Dibromofluoromethane	98.6		Limits: 75-129%		1	02/28/23 20:17	MSA	V30291
Surrogate: 1,2-Dichloroethane - d4	95.6		Limits: 63-136%		1	02/28/23 20:17	MSA	V30291
Surrogate: Toluene-d8	99.6		Limits: 77-123%		1	02/28/23 20:17	MSA	V30291

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acenaphthene	<0.302	µg/L	0.302	2.00	1	02/24/23 17:54	JMV	V30175
Acenaphthylene	<0.297	µg/L	0.297	2.00	1	02/24/23 17:54	JMV	V30175
Aniline	<2.05	µg/L	2.05	5.00	1	02/24/23 17:54	JMV	V30175
Anthracene	<0.836	µg/L	0.836	2.00	1	02/24/23 17:54	JMV	V30175
Benzo(a)anthracene	<0.637	µg/L	0.637	2.00	1	02/24/23 17:54	JMV	V30175
Benzo(a)pyrene	<1.02	µg/L	1.02	2.00	1	02/24/23 17:54	JMV	V30175
Benzo(b)fluoranthene	<2.49	µg/L	2.49	5.00	1	02/24/23 17:54	JMV	V30175
Benzo(g,h,i)perylene	<1.01	µg/L	1.01	5.00	1	02/24/23 17:54	JMV	V30175
Benzo(k)fluoranthene	<1.99	µg/L	1.99	5.00	1	02/24/23 17:54	JMV	V30175

Qualifiers/Definitions DF Dilution Factor H Beyond holding time
J Estimated value MQL Method Quantitation Limit

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F&R, Inc. - Charlotte

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Sample ID : **S-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 15:45**

Analytical Method: 8270E

Prep Batch(es): **V30094** 02/24/23 09:01

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Benzoic Acid	<1.10	µg/L	1.10	10.0	1	02/24/23 17:54	JMV	V30175
Benzyl alcohol	<0.684	µg/L	0.684	5.00	1	02/24/23 17:54	JMV	V30175
Bis(2-Chloroethoxy)methane	<0.468	µg/L	0.468	5.00	1	02/24/23 17:54	JMV	V30175
Bis(2-Chloroethyl)ether	<1.04	µg/L	1.04	5.00	1	02/24/23 17:54	JMV	V30175
Bis(2-Chloroisopropyl)ether	<1.08	µg/L	1.08	5.00	1	02/24/23 17:54	JMV	V30175
Bis(2-ethylhexyl)phthalate	<3.46	µg/L	3.46	10.0	1	02/24/23 17:54	JMV	V30175
4-Bromophenyl phenyl ether	<1.11	µg/L	1.11	5.00	1	02/24/23 17:54	JMV	V30175
Butyl benzyl phthalate	<1.83	µg/L	1.83	5.00	1	02/24/23 17:54	JMV	V30175
4-Chloro-3-methylphenol	<1.18	µg/L	1.18	5.00	1	02/24/23 17:54	JMV	V30175
4-Chloroaniline	<1.33	µg/L	1.33	5.00	1	02/24/23 17:54	JMV	V30175
2-Chloronaphthalene	<1.83	µg/L	1.83	20.0	1	02/24/23 17:54	JMV	V30175
2-Chlorophenol	<0.938	µg/L	0.938	10.0	1	02/24/23 17:54	JMV	V30175
4-Chlorophenyl phenyl ether	<1.71	µg/L	1.71	5.00	1	02/24/23 17:54	JMV	V30175
Chrysene	<0.405	µg/L	0.405	2.00	1	02/24/23 17:54	JMV	V30175
Dibenz(a,h)anthracene	<0.434	µg/L	0.434	2.00	1	02/24/23 17:54	JMV	V30175
Dibenzofuran	<0.856	µg/L	0.856	5.00	1	02/24/23 17:54	JMV	V30175
1,2-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 17:54	JMV	V30175
1,3-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 17:54	JMV	V30175
1,4-Dichlorobenzene	<2.05	µg/L	2.05	5.00	1	02/24/23 17:54	JMV	V30175
3,3'-Dichlorobenzidine	<1.89	µg/L	1.89	5.00	1	02/24/23 17:54	JMV	V30175
2,4-Dichlorophenol	<1.46	µg/L	1.46	10.0	1	02/24/23 17:54	JMV	V30175
Diethyl phthalate	<0.745	µg/L	0.745	5.00	1	02/24/23 17:54	JMV	V30175

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Sample ID : **S-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 15:45**

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Dimethyl phthalate	<0.939	µg/L	0.939	5.00	1	02/24/23 17:54	JMV	V30175
2,4-Dimethylphenol	<1.57	µg/L	1.57	20.0	1	02/24/23 17:54	JMV	V30175
Di-n-butyl phthalate	<2.06	µg/L	2.06	5.00	1	02/24/23 17:54	JMV	V30175
4,6-Dinitro-2-methylphenol	<2.07	µg/L	2.07	10.0	1	02/24/23 17:54	JMV	V30175
2,4-Dinitrophenol	<1.92	µg/L	1.92	10.0	1	02/24/23 17:54	JMV	V30175
2,4-Dinitrotoluene	<1.11	µg/L	1.11	5.00	1	02/24/23 17:54	JMV	V30175
2,6-Dinitrotoluene	<0.809	µg/L	0.809	5.00	1	02/24/23 17:54	JMV	V30175
Di-n-Octyl Phthalate	<1.65	µg/L	1.65	5.00	1	02/24/23 17:54	JMV	V30175
Fluoranthene	<0.250	µg/L	0.250	2.00	1	02/24/23 17:54	JMV	V30175
Fluorene	<0.807	µg/L	0.807	2.00	1	02/24/23 17:54	JMV	V30175
Hexachlorobenzene	<0.979	µg/L	0.979	5.00	1	02/24/23 17:54	JMV	V30175
Hexachlorobutadiene	<2.73	µg/L	2.73	5.00	1	02/24/23 17:54	JMV	V30175
Hexachlorocyclopentadiene	<2.05	µg/L	2.05	5.00	1	02/24/23 17:54	JMV	V30175
Hexachloroethane	<1.76	µg/L	1.76	5.00	1	02/24/23 17:54	JMV	V30175
Indeno(1,2,3-cd)pyrene	<0.477	µg/L	0.477	2.00	1	02/24/23 17:54	JMV	V30175
Isophorone	<0.444	µg/L	0.444	5.00	1	02/24/23 17:54	JMV	V30175
1-Methylnaphthalene	<1.14	µg/L	1.14	2.00	1	02/24/23 17:54	JMV	V30175
2-Methylnaphthalene	<0.666	µg/L	0.666	2.00	1	02/24/23 17:54	JMV	V30175
2-Methylphenol	<1.15	µg/L	1.15	5.00	1	02/24/23 17:54	JMV	V30175
3&4 Methylphenol	<0.880	µg/L	0.880	10.0	1	02/24/23 17:54	JMV	V30175
Naphthalene	<0.728	µg/L	0.728	2.00	1	02/24/23 17:54	JMV	V30175
2-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 17:54	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89451**

Sample ID : **S-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 15:45**

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
3-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 17:54	JMV	V30175
4-Nitroaniline	<1.53	µg/L	1.53	5.00	1	02/24/23 17:54	JMV	V30175
Nitrobenzene	<0.905	µg/L	0.905	5.00	1	02/24/23 17:54	JMV	V30175
2-Nitrophenol	<0.493	µg/L	0.493	5.00	1	02/24/23 17:54	JMV	V30175
4-Nitrophenol	<1.23	µg/L	1.23	10.0	1	02/24/23 17:54	JMV	V30175
N-Nitrosodimethylamine	<0.450	µg/L	0.450	5.00	1	02/24/23 17:54	JMV	V30175
N-Nitrosodiphenylamine	<1.10	µg/L	1.10	5.00	1	02/24/23 17:54	JMV	V30175
N-Nitroso-di-n-propylamine	<0.641	µg/L	0.641	5.00	1	02/24/23 17:54	JMV	V30175
Pentachlorophenol	<1.43	µg/L	1.43	5.00	1	02/24/23 17:54	JMV	V30175
Phenanthrene	<0.428	µg/L	0.428	2.00	1	02/24/23 17:54	JMV	V30175
Phenol	<0.651	µg/L	0.651	5.00	1	02/24/23 17:54	JMV	V30175
Pyrene	<0.434	µg/L	0.434	2.00	1	02/24/23 17:54	JMV	V30175
1,2,4-Trichlorobenzene	<2.21	µg/L	2.21	5.00	1	02/24/23 17:54	JMV	V30175
2,4,5-Trichlorophenol	<1.31	µg/L	1.31	5.00	1	02/24/23 17:54	JMV	V30175
2,4,6-Trichlorophenol	<1.32	µg/L	1.32	5.00	1	02/24/23 17:54	JMV	V30175
Surrogate: Phenol-d5	21.5		Limits: 11-100%		1	02/24/23 17:54	JMV	8270E
Surrogate: 2-Fluorobiphenyl	63.4		Limits: 44-119%		1	02/24/23 17:54	JMV	V30175
Surrogate: 2-Fluorophenol	32.5		Limits: 19-119%		1	02/24/23 17:54	JMV	V30175
Surrogate: Nitrobenzene-d5	54.8		Limits: 44-120%		1	02/24/23 17:54	JMV	V30175
Surrogate: 4-Terphenyl-d14	75.8		Limits: 50-134%		1	02/24/23 17:54	JMV	V30175
Surrogate: 2,4,6-Tribromophenol	70.2		Limits: 43-140%		1	02/24/23 17:54	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89452**

Sample ID : **MH-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 8:58**

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	43	mg/L	0.8	5	1	02/27/23 09:45	SLO	2320B-2011
Ammonia Nitrogen	0.17	mg/L	0.04	0.10	1	03/13/23 12:19	CMJ	4500-NH3G-2011
Chloride	18.2	mg/L	0.370	1.00	1	03/02/23 18:14	CMJ	300.0
Nitrate+Nitrite-N	1.16	mg/L	0.044	0.100	1	03/01/23 10:21	CMJ	353.2
pH	6.2 H	s.u.			1	02/24/23 09:56	SMW	4500H+B-2011
Phosphorus	<0.212	mg/L	0.212	0.500	1	03/02/23 13:21	ANH	365.4

**Qualifiers/
Definitions**

DF
J

Dilution Factor
Estimated value

H
MQL

Beyond holding time
Method Quantitation Limit

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F&R, Inc. - Charlotte
 Brian Olin
 3300 International Airport Dr., Suite 600
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Project Greenville PW
 Information :

Report Date : 03/14/2023
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Report Number : 23-054-0100

REPORT OF ANALYSIS

Lab No : 89452

Matrix: Aqueous

Sample ID : MH-2

Sampled: 2/21/2023 8:58

Analytical Method: 8015C DRO
Prep Method: 3510C

Prep Batch(es): V30141 02/27/23 09:08

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Diesel Range Organics (C10-C28)	<134	µg/L	134	500	1	02/27/23 17:20	AMP	V30177
Surrogate: OTP Surrogate	77.8		Limits: 50-150%		1	02/27/23 17:20	AMP	8015C DRO

Analytical Method: 8015C GRO
Prep Method: 5030B

Prep Batch(es): V30114 02/24/23 08:00

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Gasoline Range Organics (C6-C10)	<38.0	µg/L	38.0	200	1	02/24/23 10:58	TBL	V30115
Surrogate: a,a,a-Trifluorotoluene	102		Limits: 57-132%		1	02/24/23 10:58	TBL	8015C GRO

Analytical Method: 8260D
Prep Method: 5030B

Prep Batch(es): V30154 02/24/23 14:00 V30290 02/28/23 09:00

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<1.80	µg/L	1.80	5.00	1	02/25/23 03:53	MSA	V30155
Acrolein	<2.00	µg/L	2.00	5.00	1	02/25/23 03:53	MSA	V30155
Acrylonitrile	<0.230	µg/L	0.230	5.00	1	02/25/23 03:53	MSA	V30155
Benzene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:53	MSA	V30155
Bromobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:53	MSA	V30155
Bromochloromethane	<0.420	µg/L	0.420	1.00	1	02/25/23 03:53	MSA	V30155
Bromodichloromethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:53	MSA	V30155
Bromoform	<1.50	µg/L	1.50	5.00	1	02/25/23 03:53	MSA	V30155
Bromomethane	<0.280	µg/L	0.280	1.00	1	02/25/23 03:53	MSA	V30155

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

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F&R, Inc. - Charlotte

Brian Olin

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

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Report Number : 23-054-0100

REPORT OF ANALYSIS

Lab No : 89452

Sample ID : MH-2

Matrix: Aqueous

Sampled: 2/21/2023 8:58

Analytical Method: 8260D **Prep Batch(es):** V30154 02/24/23 14:00 V30290 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Butylbenzene	<0.185	µg/L	0.185	1.00	1	02/25/23 03:53	MSA	V30155
sec-Butyl benzene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:53	MSA	V30155
tert-Butyl benzene	<0.920	µg/L	0.920	2.00	1	02/25/23 03:53	MSA	V30155
Carbon Disulfide	<0.150	µg/L	0.150	5.00	1	02/25/23 03:53	MSA	V30155
Carbon Tetrachloride	<0.180	µg/L	0.180	0.500	1	02/25/23 03:53	MSA	V30155
Chlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:53	MSA	V30155
Chlorodibromomethane	<0.190	µg/L	0.190	0.500	1	02/25/23 03:53	MSA	V30155
Chloroethane	<0.430	µg/L	0.430	1.00	1	02/25/23 03:53	MSA	V30155
Chloroform	<0.220	µg/L	0.220	0.500	1	02/25/23 03:53	MSA	V30155
Chloromethane	<0.220	µg/L	0.220	0.500	1	02/25/23 03:53	MSA	V30155
2-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:53	MSA	V30155
4-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:53	MSA	V30155
Di-Isopropyl Ether (DIPE)	<0.960	µg/L	0.960	5.00	1	02/25/23 03:53	MSA	V30155
1,2-Dibromo-3-Chloropropane	<1.10	µg/L	1.10	2.00	1	02/25/23 03:53	MSA	V30155
1,2-Dibromoethane	<0.200	µg/L	0.200	0.500	1	02/25/23 03:53	MSA	V30155
Dibromomethane	<0.230	µg/L	0.230	0.500	1	02/25/23 03:53	MSA	V30155
1,2-Dichlorobenzene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:53	MSA	V30155
1,3-Dichlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:53	MSA	V30155
1,4-Dichlorobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:53	MSA	V30155
Dichlorodifluoromethane	<1.20	µg/L	1.20	5.00	1	02/25/23 03:53	MSA	V30155
1,1-Dichloroethane	<0.240	µg/L	0.240	0.500	1	02/25/23 03:53	MSA	V30155
1,2-Dichloroethane	<0.150	µg/L	0.150	0.500	1	02/25/23 03:53	MSA	V30155

Qualifiers/ DF Dilution Factor H Beyond holding time
Definitions J Estimated value MQL Method Quantitation Limit

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Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89452**

Sample ID : **MH-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 8:58**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
1,1-Dichloroethene	<0.150	µg/L	0.150	0.500	1	02/25/23 03:53	MSA	V30155
cis-1,2-Dichloroethene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:53	MSA	V30155
trans-1,2-Dichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:53	MSA	V30155
1,2-Dichloropropane	<0.190	µg/L	0.190	0.500	1	02/25/23 03:53	MSA	V30155
1,3-Dichloropropane	<0.130	µg/L	0.130	0.500	1	02/25/23 03:53	MSA	V30155
2,2-Dichloropropane	<0.210	µg/L	0.210	2.00	1	02/25/23 03:53	MSA	V30155
1,1-Dichloropropene	<0.200	µg/L	0.200	0.500	1	02/25/23 03:53	MSA	V30155
cis-1,3-Dichloropropene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:53	MSA	V30155
trans-1,3-Dichloropropene	<0.150	µg/L	0.150	0.500	1	02/25/23 03:53	MSA	V30155
Ethanol	<42.0	µg/L	42.0	200	1	02/28/23 20:45	MSA	V30291
Ethylbenzene	<0.170	µg/L	0.170	0.500	1	02/25/23 03:53	MSA	V30155
Ethyl Tertiary Butyl Ether (ETBE)	<1.80	µg/L	1.80	10.0	1	02/25/23 03:53	MSA	V30155
Hexachlorobutadiene	<0.350	µg/L	0.350	2.00	1	02/25/23 03:53	MSA	V30155
n-Hexane	<1.30	µg/L	1.30	10.0	1	02/25/23 03:53	MSA	V30155
2-Hexanone	<0.380	µg/L	0.380	5.00	1	02/25/23 03:53	MSA	V30155
Isopropylbenzene	<0.180	µg/L	0.180	5.00	1	02/25/23 03:53	MSA	V30155
4-Isopropyl toluene	<0.089	µg/L	0.089	0.500	1	02/25/23 03:53	MSA	V30155
Methyl Ethyl Ketone (MEK)	<0.710	µg/L	0.710	5.00	1	02/25/23 03:53	MSA	V30155
Methyl tert-butyl ether (MTBE)	0.440 J	µg/L	0.140	0.500	1	02/25/23 03:53	MSA	V30155
4-Methyl-2-Pentanone	<1.00	µg/L	1.00	5.00	1	02/25/23 03:53	MSA	V30155
Methylene Chloride	<0.330	µg/L	0.330	1.00	1	02/25/23 03:53	MSA	V30155
Naphthalene	<0.470	µg/L	0.470	1.00	1	02/25/23 03:53	MSA	V30155

Qualifiers/ DF Dilution Factor H Beyond holding time
Definitions J Estimated value MQL Method Quantitation Limit

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REPORT OF ANALYSIS

Lab No : **89452**

Sample ID : **MH-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 8:58**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Propylbenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 03:53	MSA	V30155
Styrene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:53	MSA	V30155
1,1,1,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:53	MSA	V30155
1,1,2,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:53	MSA	V30155
Tetrachloroethene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:53	MSA	V30155
Toluene	<0.220	µg/L	0.220	0.500	1	02/25/23 03:53	MSA	V30155
1,2,3-Trichlorobenzene	<0.380	µg/L	0.380	2.00	1	02/25/23 03:53	MSA	V30155
1,2,4-Trichlorobenzene	<0.310	µg/L	0.310	1.00	1	02/25/23 03:53	MSA	V30155
1,1,1-Trichloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 03:53	MSA	V30155
1,1,2-Trichloroethane	<0.096	µg/L	0.096	0.500	1	02/25/23 03:53	MSA	V30155
Trichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:53	MSA	V30155
Trichlorofluoromethane	<0.180	µg/L	0.180	0.500	1	02/25/23 03:53	MSA	V30155
1,2,3-Trichloropropane	<0.270	µg/L	0.270	1.00	1	02/25/23 03:53	MSA	V30155
1,3,5-Trimethylbenzene	<0.180	µg/L	0.180	0.500	1	02/25/23 03:53	MSA	V30155
Vinyl Acetate	<1.00	µg/L	1.00	2.00	1	02/25/23 03:53	MSA	V30155
Vinyl Chloride	<0.170	µg/L	0.170	0.500	1	02/25/23 03:53	MSA	V30155
o-Xylene	<0.210	µg/L	0.210	0.500	1	02/25/23 03:53	MSA	V30155
m,p-Xylene	<0.420	µg/L	0.420	1.00	1	02/25/23 03:53	MSA	V30155

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

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REPORT OF ANALYSIS

Lab No : **89452**

Matrix: **Aqueous**

Sample ID : **MH-2**

Sampled: **2/21/2023 8:58**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Xylene (Total)	<0.21	µg/L	0.210	0.500	1	02/25/23 03:53		V30155
Surrogate: 4-Bromofluorobenzene	94.4		Limits: 80-124%		1	02/25/23 03:53	MSA	V30155
Surrogate: Dibromofluoromethane	90.6		Limits: 75-129%		1	02/25/23 03:53	MSA	V30155
Surrogate: 1,2-Dichloroethane - d4	82.6		Limits: 63-136%		1	02/25/23 03:53	MSA	V30155
Surrogate: Toluene-d8	96.6		Limits: 77-123%		1	02/25/23 03:53	MSA	V30155
Surrogate: 4-Bromofluorobenzene	99.6		Limits: 80-124%		1	02/28/23 20:45	MSA	V30291
Surrogate: Dibromofluoromethane	98.2		Limits: 75-129%		1	02/28/23 20:45	MSA	V30291
Surrogate: 1,2-Dichloroethane - d4	94.2		Limits: 63-136%		1	02/28/23 20:45	MSA	V30291
Surrogate: Toluene-d8	99.0		Limits: 77-123%		1	02/28/23 20:45	MSA	V30291

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acenaphthene	<0.302	µg/L	0.302	2.00	1	02/24/23 18:17	JMV	V30175
Acenaphthylene	<0.297	µg/L	0.297	2.00	1	02/24/23 18:17	JMV	V30175
Aniline	<2.05	µg/L	2.05	5.00	1	02/24/23 18:17	JMV	V30175
Anthracene	<0.836	µg/L	0.836	2.00	1	02/24/23 18:17	JMV	V30175
Benzo(a)anthracene	<0.637	µg/L	0.637	2.00	1	02/24/23 18:17	JMV	V30175
Benzo(a)pyrene	<1.02	µg/L	1.02	2.00	1	02/24/23 18:17	JMV	V30175
Benzo(b)fluoranthene	<2.49	µg/L	2.49	5.00	1	02/24/23 18:17	JMV	V30175
Benzo(g,h,i)perylene	<1.01	µg/L	1.01	5.00	1	02/24/23 18:17	JMV	V30175
Benzo(k)fluoranthene	<1.99	µg/L	1.99	5.00	1	02/24/23 18:17	JMV	V30175

Qualifiers/Definitions DF Dilution Factor H Beyond holding time
J Estimated value MQL Method Quantitation Limit

00019

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Project Greenville PW

Information :

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Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89452**

Sample ID : **MH-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 8:58**

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Benzoic Acid	<1.10	µg/L	1.10	10.0	1	02/24/23 18:17	JMV	V30175
Benzyl alcohol	<0.684	µg/L	0.684	5.00	1	02/24/23 18:17	JMV	V30175
Bis(2-Chloroethoxy)methane	<0.468	µg/L	0.468	5.00	1	02/24/23 18:17	JMV	V30175
Bis(2-Chloroethyl)ether	<1.04	µg/L	1.04	5.00	1	02/24/23 18:17	JMV	V30175
Bis(2-Chloroisopropyl)ether	<1.08	µg/L	1.08	5.00	1	02/24/23 18:17	JMV	V30175
Bis(2-ethylhexyl)phthalate	129	µg/L	3.46	10.0	1	02/24/23 18:17	JMV	V30175
4-Bromophenyl phenyl ether	<1.11	µg/L	1.11	5.00	1	02/24/23 18:17	JMV	V30175
Butyl benzyl phthalate	<1.83	µg/L	1.83	5.00	1	02/24/23 18:17	JMV	V30175
4-Chloro-3-methylphenol	<1.18	µg/L	1.18	5.00	1	02/24/23 18:17	JMV	V30175
4-Chloroaniline	<1.33	µg/L	1.33	5.00	1	02/24/23 18:17	JMV	V30175
2-Chloronaphthalene	<1.83	µg/L	1.83	20.0	1	02/24/23 18:17	JMV	V30175
2-Chlorophenol	<0.938	µg/L	0.938	10.0	1	02/24/23 18:17	JMV	V30175
4-Chlorophenyl phenyl ether	<1.71	µg/L	1.71	5.00	1	02/24/23 18:17	JMV	V30175
Chrysene	<0.405	µg/L	0.405	2.00	1	02/24/23 18:17	JMV	V30175
Dibenz(a,h)anthracene	<0.434	µg/L	0.434	2.00	1	02/24/23 18:17	JMV	V30175
Dibenzofuran	<0.856	µg/L	0.856	5.00	1	02/24/23 18:17	JMV	V30175
1,2-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 18:17	JMV	V30175
1,3-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 18:17	JMV	V30175
1,4-Dichlorobenzene	<2.05	µg/L	2.05	5.00	1	02/24/23 18:17	JMV	V30175
3,3'-Dichlorobenzidine	<1.89	µg/L	1.89	5.00	1	02/24/23 18:17	JMV	V30175
2,4-Dichlorophenol	<1.46	µg/L	1.46	10.0	1	02/24/23 18:17	JMV	V30175
Diethyl phthalate	<0.745	µg/L	0.745	5.00	1	02/24/23 18:17	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89452**

Sample ID : **MH-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 8:58**

Analytical Method: 8270E

Prep Batch(es): **V30094** 02/24/23 09:01

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Dimethyl phthalate	<0.939	µg/L	0.939	5.00	1	02/24/23 18:17	JMV	V30175
2,4-Dimethylphenol	<1.57	µg/L	1.57	20.0	1	02/24/23 18:17	JMV	V30175
Di-n-butyl phthalate	<2.06	µg/L	2.06	5.00	1	02/24/23 18:17	JMV	V30175
4,6-Dinitro-2-methylphenol	<2.07	µg/L	2.07	10.0	1	02/24/23 18:17	JMV	V30175
2,4-Dinitrophenol	<1.92	µg/L	1.92	10.0	1	02/24/23 18:17	JMV	V30175
2,4-Dinitrotoluene	<1.11	µg/L	1.11	5.00	1	02/24/23 18:17	JMV	V30175
2,6-Dinitrotoluene	<0.809	µg/L	0.809	5.00	1	02/24/23 18:17	JMV	V30175
Di-n-Octyl Phthalate	<1.65	µg/L	1.65	5.00	1	02/24/23 18:17	JMV	V30175
Fluoranthene	<0.250	µg/L	0.250	2.00	1	02/24/23 18:17	JMV	V30175
Fluorene	<0.807	µg/L	0.807	2.00	1	02/24/23 18:17	JMV	V30175
Hexachlorobenzene	<0.979	µg/L	0.979	5.00	1	02/24/23 18:17	JMV	V30175
Hexachlorobutadiene	<2.73	µg/L	2.73	5.00	1	02/24/23 18:17	JMV	V30175
Hexachlorocyclopentadiene	<2.05	µg/L	2.05	5.00	1	02/24/23 18:17	JMV	V30175
Hexachloroethane	<1.76	µg/L	1.76	5.00	1	02/24/23 18:17	JMV	V30175
Indeno(1,2,3-cd)pyrene	<0.477	µg/L	0.477	2.00	1	02/24/23 18:17	JMV	V30175
Isophorone	<0.444	µg/L	0.444	5.00	1	02/24/23 18:17	JMV	V30175
1-Methylnaphthalene	<1.14	µg/L	1.14	2.00	1	02/24/23 18:17	JMV	V30175
2-Methylnaphthalene	<0.666	µg/L	0.666	2.00	1	02/24/23 18:17	JMV	V30175
2-Methylphenol	<1.15	µg/L	1.15	5.00	1	02/24/23 18:17	JMV	V30175
3&4 Methylphenol	<0.880	µg/L	0.880	10.0	1	02/24/23 18:17	JMV	V30175
Naphthalene	<0.728	µg/L	0.728	2.00	1	02/24/23 18:17	JMV	V30175
2-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 18:17	JMV	V30175

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89452**

Sample ID : **MH-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 8:58**

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
3-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 18:17	JMV	V30175
4-Nitroaniline	<1.53	µg/L	1.53	5.00	1	02/24/23 18:17	JMV	V30175
Nitrobenzene	<0.905	µg/L	0.905	5.00	1	02/24/23 18:17	JMV	V30175
2-Nitrophenol	<0.493	µg/L	0.493	5.00	1	02/24/23 18:17	JMV	V30175
4-Nitrophenol	<1.23	µg/L	1.23	10.0	1	02/24/23 18:17	JMV	V30175
N-Nitrosodimethylamine	<0.450	µg/L	0.450	5.00	1	02/24/23 18:17	JMV	V30175
N-Nitrosodiphenylamine	<1.10	µg/L	1.10	5.00	1	02/24/23 18:17	JMV	V30175
N-Nitroso-di-n-propylamine	<0.641	µg/L	0.641	5.00	1	02/24/23 18:17	JMV	V30175
Pentachlorophenol	<1.43	µg/L	1.43	5.00	1	02/24/23 18:17	JMV	V30175
Phenanthrene	<0.428	µg/L	0.428	2.00	1	02/24/23 18:17	JMV	V30175
Phenol	<0.651	µg/L	0.651	5.00	1	02/24/23 18:17	JMV	V30175
Pyrene	<0.434	µg/L	0.434	2.00	1	02/24/23 18:17	JMV	V30175
1,2,4-Trichlorobenzene	<2.21	µg/L	2.21	5.00	1	02/24/23 18:17	JMV	V30175
2,4,5-Trichlorophenol	<1.31	µg/L	1.31	5.00	1	02/24/23 18:17	JMV	V30175
2,4,6-Trichlorophenol	<1.32	µg/L	1.32	5.00	1	02/24/23 18:17	JMV	V30175
Surrogate: Phenol-d5	22.6		Limits: 11-100%		1	02/24/23 18:17	JMV	8270E
Surrogate: 2-Fluorobiphenyl	69.4		Limits: 44-119%		1	02/24/23 18:17	JMV	V30175
Surrogate: 2-Fluorophenol	33.9		Limits: 19-119%		1	02/24/23 18:17	JMV	V30175
Surrogate: Nitrobenzene-d5	55.6		Limits: 44-120%		1	02/24/23 18:17	JMV	V30175
Surrogate: 4-Terphenyl-d14	83.2		Limits: 50-134%		1	02/24/23 18:17	JMV	V30175
Surrogate: 2,4,6-Tribromophenol	80.7		Limits: 43-140%		1	02/24/23 18:17	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89453**

Sample ID : **TMW-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 12:32**

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	2 J	mg/L	0.8	5	1	02/27/23 09:45	SLO	2320B-2011
Ammonia Nitrogen	0.05 J	mg/L	0.04	0.10	1	03/13/23 12:19	CMJ	4500-NH3G-2011
Chloride	21.6	mg/L	0.370	1.00	1	03/02/23 18:30	CMJ	300.0
Nitrate+Nitrite-N	<0.044	mg/L	0.044	0.100	1	02/24/23 15:31	CMJ	353.2
pH	4.7 H	s.u.			1	02/24/23 09:56	SMW	4500H+B-2011
Phosphorus	<0.212	mg/L	0.212	0.500	1	03/02/23 13:25	ANH	365.4

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89453**

Sample ID : **TMW-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 12:32**

Analytical Method: 8015C DRO

Prep Batch(es): **V30141** 02/27/23 09:08

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Diesel Range Organics (C10-C28)	162 J	µg/L	134	500	1	02/27/23 17:41	AMP	V30177
Surrogate: OTP Surrogate	75.3		Limits: 50-150%		1	02/27/23 17:41	AMP	8015C DRO

Analytical Method: 8015C GRO

Prep Batch(es): **V30114** 02/24/23 08:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Gasoline Range Organics (C6-C10)	51.9 J	µg/L	38.0	200	1	02/24/23 11:26	TBL	V30115
Surrogate: a,a,a-Trifluorotoluene	101		Limits: 57-132%		1	02/24/23 11:26	TBL	8015C GRO

Analytical Method: 8260D

Prep Batch(es): **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<1.80	µg/L	1.80	5.00	1	02/25/23 04:17	MSA	V30155
Acrolein	<2.00	µg/L	2.00	5.00	1	02/25/23 04:17	MSA	V30155
Acrylonitrile	<0.230	µg/L	0.230	5.00	1	02/25/23 04:17	MSA	V30155
Benzene	<0.180	µg/L	0.180	0.500	1	02/25/23 04:17	MSA	V30155
Bromobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 04:17	MSA	V30155
Bromochloromethane	<0.420	µg/L	0.420	1.00	1	02/25/23 04:17	MSA	V30155
Bromodichloromethane	<0.160	µg/L	0.160	0.500	1	02/25/23 04:17	MSA	V30155
Bromoform	<1.50	µg/L	1.50	5.00	1	02/25/23 04:17	MSA	V30155
Bromomethane	<0.280	µg/L	0.280	1.00	1	02/25/23 04:17	MSA	V30155

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89453**

Sample ID : **TMW-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 12:32**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Butylbenzene	<0.185	µg/L	0.185	1.00	1	02/25/23 04:17	MSA	V30155
sec-Butyl benzene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:17	MSA	V30155
tert-Butyl benzene	<0.920	µg/L	0.920	2.00	1	02/25/23 04:17	MSA	V30155
Carbon Disulfide	<0.150	µg/L	0.150	5.00	1	02/25/23 04:17	MSA	V30155
Carbon Tetrachloride	<0.180	µg/L	0.180	0.500	1	02/25/23 04:17	MSA	V30155
Chlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 04:17	MSA	V30155
Chlorodibromomethane	<0.190	µg/L	0.190	0.500	1	02/25/23 04:17	MSA	V30155
Chloroethane	<0.430	µg/L	0.430	1.00	1	02/25/23 04:17	MSA	V30155
Chloroform	<0.220	µg/L	0.220	0.500	1	02/25/23 04:17	MSA	V30155
Chloromethane	<0.220	µg/L	0.220	0.500	1	02/25/23 04:17	MSA	V30155
2-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:17	MSA	V30155
4-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:17	MSA	V30155
Di-Isopropyl Ether (DIPE)	5.22	µg/L	0.960	5.00	1	02/25/23 04:17	MSA	V30155
1,2-Dibromo-3-Chloropropane	<1.10	µg/L	1.10	2.00	1	02/25/23 04:17	MSA	V30155
1,2-Dibromoethane	<0.200	µg/L	0.200	0.500	1	02/25/23 04:17	MSA	V30155
Dibromomethane	<0.230	µg/L	0.230	0.500	1	02/25/23 04:17	MSA	V30155
1,2-Dichlorobenzene	<0.220	µg/L	0.220	0.500	1	02/25/23 04:17	MSA	V30155
1,3-Dichlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 04:17	MSA	V30155
1,4-Dichlorobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 04:17	MSA	V30155
Dichlorodifluoromethane	<1.20	µg/L	1.20	5.00	1	02/25/23 04:17	MSA	V30155
1,1-Dichloroethane	<0.240	µg/L	0.240	0.500	1	02/25/23 04:17	MSA	V30155
1,2-Dichloroethane	0.554	µg/L	0.150	0.500	1	02/25/23 04:17	MSA	V30155

Qualifiers/ Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89453**

Sample ID : **TMW-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 12:32**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
1,1-Dichloroethene	<0.150	µg/L	0.150	0.500	1	02/25/23 04:17	MSA	V30155
cis-1,2-Dichloroethene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:17	MSA	V30155
trans-1,2-Dichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 04:17	MSA	V30155
1,2-Dichloropropane	<0.190	µg/L	0.190	0.500	1	02/25/23 04:17	MSA	V30155
1,3-Dichloropropane	<0.130	µg/L	0.130	0.500	1	02/25/23 04:17	MSA	V30155
2,2-Dichloropropane	<0.210	µg/L	0.210	2.00	1	02/25/23 04:17	MSA	V30155
1,1-Dichloropropene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:17	MSA	V30155
cis-1,3-Dichloropropene	<0.210	µg/L	0.210	0.500	1	02/25/23 04:17	MSA	V30155
trans-1,3-Dichloropropene	<0.150	µg/L	0.150	0.500	1	02/25/23 04:17	MSA	V30155
Ethanol	<42.0	µg/L	42.0	200	1	02/28/23 21:12	MSA	V30291
Ethylbenzene	<0.170	µg/L	0.170	0.500	1	02/25/23 04:17	MSA	V30155
Ethyl Tertiary Butyl Ether (ETBE)	<1.80	µg/L	1.80	10.0	1	02/25/23 04:17	MSA	V30155
Hexachlorobutadiene	<0.350	µg/L	0.350	2.00	1	02/25/23 04:17	MSA	V30155
n-Hexane	<1.30	µg/L	1.30	10.0	1	02/25/23 04:17	MSA	V30155
2-Hexanone	<0.380	µg/L	0.380	5.00	1	02/25/23 04:17	MSA	V30155
Isopropylbenzene	<0.180	µg/L	0.180	5.00	1	02/25/23 04:17	MSA	V30155
4-Isopropyl toluene	<0.089	µg/L	0.089	0.500	1	02/25/23 04:17	MSA	V30155
Methyl Ethyl Ketone (MEK)	<0.710	µg/L	0.710	5.00	1	02/25/23 04:17	MSA	V30155
Methyl tert-butyl ether (MTBE)	95.6	µg/L	0.140	0.500	1	02/25/23 04:17	MSA	V30155
4-Methyl-2-Pentanone	<1.00	µg/L	1.00	5.00	1	02/25/23 04:17	MSA	V30155
Methylene Chloride	<0.330	µg/L	0.330	1.00	1	02/25/23 04:17	MSA	V30155
Naphthalene	<0.470	µg/L	0.470	1.00	1	02/25/23 04:17	MSA	V30155

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89453**

Sample ID : **TMW-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 12:32**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Propylbenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 04:17	MSA	V30155
Styrene	<0.220	µg/L	0.220	0.500	1	02/25/23 04:17	MSA	V30155
1,1,1,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 04:17	MSA	V30155
1,1,2,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 04:17	MSA	V30155
Tetrachloroethene	<0.220	µg/L	0.220	0.500	1	02/25/23 04:17	MSA	V30155
Toluene	<0.220	µg/L	0.220	0.500	1	02/25/23 04:17	MSA	V30155
1,2,3-Trichlorobenzene	<0.380	µg/L	0.380	2.00	1	02/25/23 04:17	MSA	V30155
1,2,4-Trichlorobenzene	<0.310	µg/L	0.310	1.00	1	02/25/23 04:17	MSA	V30155
1,1,1-Trichloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 04:17	MSA	V30155
1,1,2-Trichloroethane	<0.096	µg/L	0.096	0.500	1	02/25/23 04:17	MSA	V30155
Trichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 04:17	MSA	V30155
Trichlorofluoromethane	<0.180	µg/L	0.180	0.500	1	02/25/23 04:17	MSA	V30155
1,2,3-Trichloropropane	<0.270	µg/L	0.270	1.00	1	02/25/23 04:17	MSA	V30155
1,3,5-Trimethylbenzene	<0.180	µg/L	0.180	0.500	1	02/25/23 04:17	MSA	V30155
Vinyl Acetate	<1.00	µg/L	1.00	2.00	1	02/25/23 04:17	MSA	V30155
Vinyl Chloride	<0.170	µg/L	0.170	0.500	1	02/25/23 04:17	MSA	V30155
o-Xylene	<0.210	µg/L	0.210	0.500	1	02/25/23 04:17	MSA	V30155
m,p-Xylene	<0.420	µg/L	0.420	1.00	1	02/25/23 04:17	MSA	V30155

**Qualifiers/
Definitions**

DF
J

Dilution Factor
Estimated value

H
MQL

Beyond holding time
Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89453**

Sample ID : **TMW-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 12:32**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Xylene (Total)	<0.21	µg/L	0.210	0.500	1	02/25/23 04:17		V30155
Surrogate: 4-Bromofluorobenzene	93.0		Limits: 80-124%		1	02/25/23 04:17	MSA	V30155
Surrogate: Dibromofluoromethane	91.0		Limits: 75-129%		1	02/25/23 04:17	MSA	V30155
Surrogate: 1,2-Dichloroethane - d4	86.4		Limits: 63-136%		1	02/25/23 04:17	MSA	V30155
Surrogate: Toluene-d8	94.8		Limits: 77-123%		1	02/25/23 04:17	MSA	V30155
Surrogate: 4-Bromofluorobenzene	99.2		Limits: 80-124%		1	02/28/23 21:12	MSA	V30291
Surrogate: Dibromofluoromethane	97.6		Limits: 75-129%		1	02/28/23 21:12	MSA	V30291
Surrogate: 1,2-Dichloroethane - d4	94.0		Limits: 63-136%		1	02/28/23 21:12	MSA	V30291
Surrogate: Toluene-d8	99.4		Limits: 77-123%		1	02/28/23 21:12	MSA	V30291

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acenaphthene	<0.302	µg/L	0.302	2.00	1	02/24/23 18:40	JMV	V30175
Acenaphthylene	<0.297	µg/L	0.297	2.00	1	02/24/23 18:40	JMV	V30175
Aniline	<2.05	µg/L	2.05	5.00	1	02/24/23 18:40	JMV	V30175
Anthracene	<0.836	µg/L	0.836	2.00	1	02/24/23 18:40	JMV	V30175
Benzo(a)anthracene	<0.637	µg/L	0.637	2.00	1	02/24/23 18:40	JMV	V30175
Benzo(a)pyrene	<1.02	µg/L	1.02	2.00	1	02/24/23 18:40	JMV	V30175
Benzo(b)fluoranthene	<2.49	µg/L	2.49	5.00	1	02/24/23 18:40	JMV	V30175
Benzo(g,h,i)perylene	<1.01	µg/L	1.01	5.00	1	02/24/23 18:40	JMV	V30175
Benzo(k)fluoranthene	<1.99	µg/L	1.99	5.00	1	02/24/23 18:40	JMV	V30175

Qualifiers/ DF Dilution Factor H Beyond holding time
Definitions J Estimated value MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89453**

Sample ID : **TMW-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 12:32**

Analytical Method: 8270E

Prep Batch(es): **V30094** 02/24/23 09:01

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Benzoic Acid	<1.10	µg/L	1.10	10.0	1	02/24/23 18:40	JMV	V30175
Benzyl alcohol	<0.684	µg/L	0.684	5.00	1	02/24/23 18:40	JMV	V30175
Bis(2-Chloroethoxy)methane	<0.468	µg/L	0.468	5.00	1	02/24/23 18:40	JMV	V30175
Bis(2-Chloroethyl)ether	<1.04	µg/L	1.04	5.00	1	02/24/23 18:40	JMV	V30175
Bis(2-Chloroisopropyl)ether	<1.08	µg/L	1.08	5.00	1	02/24/23 18:40	JMV	V30175
Bis(2-ethylhexyl)phthalate	6.48 J	µg/L	3.46	10.0	1	02/24/23 18:40	JMV	V30175
4-Bromophenyl phenyl ether	<1.11	µg/L	1.11	5.00	1	02/24/23 18:40	JMV	V30175
Butyl benzyl phthalate	<1.83	µg/L	1.83	5.00	1	02/24/23 18:40	JMV	V30175
4-Chloro-3-methylphenol	<1.18	µg/L	1.18	5.00	1	02/24/23 18:40	JMV	V30175
4-Chloroaniline	<1.33	µg/L	1.33	5.00	1	02/24/23 18:40	JMV	V30175
2-Chloronaphthalene	<1.83	µg/L	1.83	20.0	1	02/24/23 18:40	JMV	V30175
2-Chlorophenol	<0.938	µg/L	0.938	10.0	1	02/24/23 18:40	JMV	V30175
4-Chlorophenyl phenyl ether	<1.71	µg/L	1.71	5.00	1	02/24/23 18:40	JMV	V30175
Chrysene	<0.405	µg/L	0.405	2.00	1	02/24/23 18:40	JMV	V30175
Dibenz(a,h)anthracene	<0.434	µg/L	0.434	2.00	1	02/24/23 18:40	JMV	V30175
Dibenzofuran	<0.856	µg/L	0.856	5.00	1	02/24/23 18:40	JMV	V30175
1,2-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 18:40	JMV	V30175
1,3-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 18:40	JMV	V30175
1,4-Dichlorobenzene	<2.05	µg/L	2.05	5.00	1	02/24/23 18:40	JMV	V30175
3,3'-Dichlorobenzidine	<1.89	µg/L	1.89	5.00	1	02/24/23 18:40	JMV	V30175
2,4-Dichlorophenol	<1.46	µg/L	1.46	10.0	1	02/24/23 18:40	JMV	V30175
Diethyl phthalate	<0.745	µg/L	0.745	5.00	1	02/24/23 18:40	JMV	V30175

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
 Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : 23-054-0100

REPORT OF ANALYSIS

Lab No : 89453

Sample ID : TMW-1

Matrix: Aqueous

Sampled: 2/21/2023 12:32

Analytical Method: 8270E Prep Batch(es): V30094 02/24/23 09:01
 Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Dimethyl phthalate	<0.939	µg/L	0.939	5.00	1	02/24/23 18:40	JMV	V30175
2,4-Dimethylphenol	<1.57	µg/L	1.57	20.0	1	02/24/23 18:40	JMV	V30175
Di-n-butyl phthalate	<2.06	µg/L	2.06	5.00	1	02/24/23 18:40	JMV	V30175
4,6-Dinitro-2-methylphenol	<2.07	µg/L	2.07	10.0	1	02/24/23 18:40	JMV	V30175
2,4-Dinitrophenol	<1.92	µg/L	1.92	10.0	1	02/24/23 18:40	JMV	V30175
2,4-Dinitrotoluene	<1.11	µg/L	1.11	5.00	1	02/24/23 18:40	JMV	V30175
2,6-Dinitrotoluene	<0.809	µg/L	0.809	5.00	1	02/24/23 18:40	JMV	V30175
Di-n-Octyl Phthalate	<1.65	µg/L	1.65	5.00	1	02/24/23 18:40	JMV	V30175
Fluoranthene	<0.250	µg/L	0.250	2.00	1	02/24/23 18:40	JMV	V30175
Fluorene	<0.807	µg/L	0.807	2.00	1	02/24/23 18:40	JMV	V30175
Hexachlorobenzene	<0.979	µg/L	0.979	5.00	1	02/24/23 18:40	JMV	V30175
Hexachlorobutadiene	<2.73	µg/L	2.73	5.00	1	02/24/23 18:40	JMV	V30175
Hexachlorocyclopentadiene	<2.05	µg/L	2.05	5.00	1	02/24/23 18:40	JMV	V30175
Hexachloroethane	<1.76	µg/L	1.76	5.00	1	02/24/23 18:40	JMV	V30175
Indeno(1,2,3-cd)pyrene	<0.477	µg/L	0.477	2.00	1	02/24/23 18:40	JMV	V30175
Isophorone	<0.444	µg/L	0.444	5.00	1	02/24/23 18:40	JMV	V30175
1-Methylnaphthalene	<1.14	µg/L	1.14	2.00	1	02/24/23 18:40	JMV	V30175
2-Methylnaphthalene	<0.666	µg/L	0.666	2.00	1	02/24/23 18:40	JMV	V30175
2-Methylphenol	<1.15	µg/L	1.15	5.00	1	02/24/23 18:40	JMV	V30175
3&4 Methylphenol	<0.880	µg/L	0.880	10.0	1	02/24/23 18:40	JMV	V30175
Naphthalene	<0.728	µg/L	0.728	2.00	1	02/24/23 18:40	JMV	V30175
2-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 18:40	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89453**

Sample ID : **TMW-1**

Matrix: **Aqueous**

Sampled: **2/21/2023 12:32**

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
3-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 18:40	JMV	V30175
4-Nitroaniline	<1.53	µg/L	1.53	5.00	1	02/24/23 18:40	JMV	V30175
Nitrobenzene	<0.905	µg/L	0.905	5.00	1	02/24/23 18:40	JMV	V30175
2-Nitrophenol	<0.493	µg/L	0.493	5.00	1	02/24/23 18:40	JMV	V30175
4-Nitrophenol	<1.23	µg/L	1.23	10.0	1	02/24/23 18:40	JMV	V30175
N-Nitrosodimethylamine	<0.450	µg/L	0.450	5.00	1	02/24/23 18:40	JMV	V30175
N-Nitrosodiphenylamine	<1.10	µg/L	1.10	5.00	1	02/24/23 18:40	JMV	V30175
N-Nitroso-di-n-propylamine	<0.641	µg/L	0.641	5.00	1	02/24/23 18:40	JMV	V30175
Pentachlorophenol	<1.43	µg/L	1.43	5.00	1	02/24/23 18:40	JMV	V30175
Phenanthrene	<0.428	µg/L	0.428	2.00	1	02/24/23 18:40	JMV	V30175
Phenol	<0.651	µg/L	0.651	5.00	1	02/24/23 18:40	JMV	V30175
Pyrene	<0.434	µg/L	0.434	2.00	1	02/24/23 18:40	JMV	V30175
1,2,4-Trichlorobenzene	<2.21	µg/L	2.21	5.00	1	02/24/23 18:40	JMV	V30175
2,4,5-Trichlorophenol	<1.31	µg/L	1.31	5.00	1	02/24/23 18:40	JMV	V30175
2,4,6-Trichlorophenol	<1.32	µg/L	1.32	5.00	1	02/24/23 18:40	JMV	V30175
Surrogate: Phenol-d5	32.0		Limits: 11-100%		1	02/24/23 18:40	JMV	8270E
Surrogate: 2-Fluorobiphenyl	86.6		Limits: 44-119%		1	02/24/23 18:40	JMV	V30175
Surrogate: 2-Fluorophenol	46.8		Limits: 19-119%		1	02/24/23 18:40	JMV	V30175
Surrogate: Nitrobenzene-d5	72.2		Limits: 44-120%		1	02/24/23 18:40	JMV	V30175
Surrogate: 4-Terphenyl-d14	98.0		Limits: 50-134%		1	02/24/23 18:40	JMV	V30175
Surrogate: 2,4,6-Tribromophenol	99.3		Limits: 43-140%		1	02/24/23 18:40	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

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Brian Olin

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	15	mg/L	0.8	5	1	02/27/23 09:45	SLO	2320B-2011
Ammonia Nitrogen	0.08 J	mg/L	0.04	0.10	1	03/13/23 12:19	CMJ	4500-NH3G-2011
Chloride	14.4	mg/L	0.370	1.00	1	02/28/23 18:46	CMJ	300.0
Nitrate+Nitrite-N	0.185	mg/L	0.044	0.100	1	03/01/23 10:21	CMJ	353.2
pH	5.4 H	s.u.			1	02/24/23 09:56	SMW	4500H+B-2011
Phosphorus	0.432 J	mg/L	0.212	0.500	1	03/02/23 13:26	ANH	365.4

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Analytical Method: 8015C DRO

Prep Batch(es): **V30141** 02/27/23 09:08

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Diesel Range Organics (C10-C28)	<135	µg/L	135	505	1	02/27/23 18:02	AMP	V30177
Surrogate: OTP Surrogate	57.7		Limits: 50-150%		1	02/27/23 18:02	AMP	8015C DRO

Analytical Method: 8015C GRO

Prep Batch(es): **V30114** 02/24/23 08:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Gasoline Range Organics (C6-C10)	<38.0	µg/L	38.0	200	1	02/24/23 11:54	TBL	V30115
Surrogate: a,a,a-Trifluorotoluene	97.2		Limits: 57-132%		1	02/24/23 11:54	TBL	8015C GRO

Analytical Method: 8260D

Prep Batch(es): **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<1.80	µg/L	1.80	5.00	1	02/25/23 04:41	MSA	V30155
Acrolein	<2.00	µg/L	2.00	5.00	1	02/25/23 04:41	MSA	V30155
Acrylonitrile	<0.230	µg/L	0.230	5.00	1	02/25/23 04:41	MSA	V30155
Benzene	<0.180	µg/L	0.180	0.500	1	02/25/23 04:41	MSA	V30155
Bromobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 04:41	MSA	V30155
Bromochloromethane	<0.420	µg/L	0.420	1.00	1	02/25/23 04:41	MSA	V30155
Bromodichloromethane	<0.160	µg/L	0.160	0.500	1	02/25/23 04:41	MSA	V30155
Bromoform	<1.50	µg/L	1.50	5.00	1	02/25/23 04:41	MSA	V30155
Bromomethane	<0.280	µg/L	0.280	1.00	1	02/25/23 04:41	MSA	V30155

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Butylbenzene	<0.185	µg/L	0.185	1.00	1	02/25/23 04:41	MSA	V30155
sec-Butyl benzene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:41	MSA	V30155
tert-Butyl benzene	<0.920	µg/L	0.920	2.00	1	02/25/23 04:41	MSA	V30155
Carbon Disulfide	<0.150	µg/L	0.150	5.00	1	02/25/23 04:41	MSA	V30155
Carbon Tetrachloride	<0.180	µg/L	0.180	0.500	1	02/25/23 04:41	MSA	V30155
Chlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 04:41	MSA	V30155
Chlorodibromomethane	<0.190	µg/L	0.190	0.500	1	02/25/23 04:41	MSA	V30155
Chloroethane	<0.430	µg/L	0.430	1.00	1	02/25/23 04:41	MSA	V30155
Chloroform	<0.220	µg/L	0.220	0.500	1	02/25/23 04:41	MSA	V30155
Chloromethane	<0.220	µg/L	0.220	0.500	1	02/25/23 04:41	MSA	V30155
2-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:41	MSA	V30155
4-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:41	MSA	V30155
Di-Isopropyl Ether (DIPE)	<0.960	µg/L	0.960	5.00	1	02/25/23 04:41	MSA	V30155
1,2-Dibromo-3-Chloropropane	<1.10	µg/L	1.10	2.00	1	02/25/23 04:41	MSA	V30155
1,2-Dibromoethane	<0.200	µg/L	0.200	0.500	1	02/25/23 04:41	MSA	V30155
Dibromomethane	<0.230	µg/L	0.230	0.500	1	02/25/23 04:41	MSA	V30155
1,2-Dichlorobenzene	<0.220	µg/L	0.220	0.500	1	02/25/23 04:41	MSA	V30155
1,3-Dichlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 04:41	MSA	V30155
1,4-Dichlorobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 04:41	MSA	V30155
Dichlorodifluoromethane	<1.20	µg/L	1.20	5.00	1	02/25/23 04:41	MSA	V30155
1,1-Dichloroethane	<0.240	µg/L	0.240	0.500	1	02/25/23 04:41	MSA	V30155
1,2-Dichloroethane	<0.150	µg/L	0.150	0.500	1	02/25/23 04:41	MSA	V30155

Qualifiers/ DF Dilution Factor H Beyond holding time
Definitions J Estimated value MQL Method Quantitation Limit

00019

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Information :

Report Date : 03/14/2023

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Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
1,1-Dichloroethene	<0.150	µg/L	0.150	0.500	1	02/25/23 04:41	MSA	V30155
cis-1,2-Dichloroethene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:41	MSA	V30155
trans-1,2-Dichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 04:41	MSA	V30155
1,2-Dichloropropane	<0.190	µg/L	0.190	0.500	1	02/25/23 04:41	MSA	V30155
1,3-Dichloropropane	<0.130	µg/L	0.130	0.500	1	02/25/23 04:41	MSA	V30155
2,2-Dichloropropane	<0.210	µg/L	0.210	2.00	1	02/25/23 04:41	MSA	V30155
1,1-Dichloropropene	<0.200	µg/L	0.200	0.500	1	02/25/23 04:41	MSA	V30155
cis-1,3-Dichloropropene	<0.210	µg/L	0.210	0.500	1	02/25/23 04:41	MSA	V30155
trans-1,3-Dichloropropene	<0.150	µg/L	0.150	0.500	1	02/25/23 04:41	MSA	V30155
Ethanol	<42.0	µg/L	42.0	200	1	02/28/23 21:39	MSA	V30291
Ethylbenzene	<0.170	µg/L	0.170	0.500	1	02/25/23 04:41	MSA	V30155
Ethyl Tertiary Butyl Ether (ETBE)	<1.80	µg/L	1.80	10.0	1	02/25/23 04:41	MSA	V30155
Hexachlorobutadiene	<0.350	µg/L	0.350	2.00	1	02/25/23 04:41	MSA	V30155
n-Hexane	<1.30	µg/L	1.30	10.0	1	02/25/23 04:41	MSA	V30155
2-Hexanone	<0.380	µg/L	0.380	5.00	1	02/25/23 04:41	MSA	V30155
Isopropylbenzene	<0.180	µg/L	0.180	5.00	1	02/25/23 04:41	MSA	V30155
4-Isopropyl toluene	<0.089	µg/L	0.089	0.500	1	02/25/23 04:41	MSA	V30155
Methyl Ethyl Ketone (MEK)	<0.710	µg/L	0.710	5.00	1	02/25/23 04:41	MSA	V30155
Methyl tert-butyl ether (MTBE)	1.61	µg/L	0.140	0.500	1	02/25/23 04:41	MSA	V30155
4-Methyl-2-Pentanone	<1.00	µg/L	1.00	5.00	1	02/25/23 04:41	MSA	V30155
Methylene Chloride	<0.330	µg/L	0.330	1.00	1	02/25/23 04:41	MSA	V30155
Naphthalene	<0.470	µg/L	0.470	1.00	1	02/25/23 04:41	MSA	V30155

Qualifiers/ DF Dilution Factor H Beyond holding time
Definitions J Estimated value MQL Method Quantitation Limit

00019

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Project Greenville PW

Information :

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Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Propylbenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 04:41	MSA	V30155
Styrene	<0.220	µg/L	0.220	0.500	1	02/25/23 04:41	MSA	V30155
1,1,1,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 04:41	MSA	V30155
1,1,2,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 04:41	MSA	V30155
Tetrachloroethene	<0.220	µg/L	0.220	0.500	1	02/25/23 04:41	MSA	V30155
Toluene	<0.220	µg/L	0.220	0.500	1	02/25/23 04:41	MSA	V30155
1,2,3-Trichlorobenzene	<0.380	µg/L	0.380	2.00	1	02/25/23 04:41	MSA	V30155
1,2,4-Trichlorobenzene	<0.310	µg/L	0.310	1.00	1	02/25/23 04:41	MSA	V30155
1,1,1-Trichloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 04:41	MSA	V30155
1,1,2-Trichloroethane	<0.096	µg/L	0.096	0.500	1	02/25/23 04:41	MSA	V30155
Trichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 04:41	MSA	V30155
Trichlorofluoromethane	<0.180	µg/L	0.180	0.500	1	02/25/23 04:41	MSA	V30155
1,2,3-Trichloropropane	<0.270	µg/L	0.270	1.00	1	02/25/23 04:41	MSA	V30155
1,3,5-Trimethylbenzene	<0.180	µg/L	0.180	0.500	1	02/25/23 04:41	MSA	V30155
Vinyl Acetate	<1.00	µg/L	1.00	2.00	1	02/25/23 04:41	MSA	V30155
Vinyl Chloride	<0.170	µg/L	0.170	0.500	1	02/25/23 04:41	MSA	V30155
o-Xylene	<0.210	µg/L	0.210	0.500	1	02/25/23 04:41	MSA	V30155
m,p-Xylene	<0.420	µg/L	0.420	1.00	1	02/25/23 04:41	MSA	V30155

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value
H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Xylene (Total)	<0.21	µg/L	0.210	0.500	1	02/25/23 04:41		V30155
Surrogate: 4-Bromofluorobenzene	92.6		Limits: 80-124%		1	02/25/23 04:41	MSA	V30155
Surrogate: Dibromofluoromethane	90.8		Limits: 75-129%		1	02/25/23 04:41	MSA	V30155
Surrogate: 1,2-Dichloroethane - d4	86.0		Limits: 63-136%		1	02/25/23 04:41	MSA	V30155
Surrogate: Toluene-d8	93.8		Limits: 77-123%		1	02/25/23 04:41	MSA	V30155
Surrogate: 4-Bromofluorobenzene	101		Limits: 80-124%		1	02/28/23 21:39	MSA	V30291
Surrogate: Dibromofluoromethane	98.4		Limits: 75-129%		1	02/28/23 21:39	MSA	V30291
Surrogate: 1,2-Dichloroethane - d4	94.8		Limits: 63-136%		1	02/28/23 21:39	MSA	V30291
Surrogate: Toluene-d8	98.8		Limits: 77-123%		1	02/28/23 21:39	MSA	V30291

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acenaphthene	<0.302	µg/L	0.302	2.00	1	02/24/23 19:03	JMV	V30175
Acenaphthylene	<0.297	µg/L	0.297	2.00	1	02/24/23 19:03	JMV	V30175
Aniline	<2.05	µg/L	2.05	5.00	1	02/24/23 19:03	JMV	V30175
Anthracene	<0.836	µg/L	0.836	2.00	1	02/24/23 19:03	JMV	V30175
Benzo(a)anthracene	<0.637	µg/L	0.637	2.00	1	02/24/23 19:03	JMV	V30175
Benzo(a)pyrene	<1.02	µg/L	1.02	2.00	1	02/24/23 19:03	JMV	V30175
Benzo(b)fluoranthene	<2.49	µg/L	2.49	5.00	1	02/24/23 19:03	JMV	V30175
Benzo(g,h,i)perylene	<1.01	µg/L	1.01	5.00	1	02/24/23 19:03	JMV	V30175
Benzo(k)fluoranthene	<1.99	µg/L	1.99	5.00	1	02/24/23 19:03	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Analytical Method: 8270E

Prep Batch(es): **V30094** 02/24/23 09:01

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Benzoic Acid	<1.10	µg/L	1.10	10.0	1	02/24/23 19:03	JMV	V30175
Benzyl alcohol	<0.684	µg/L	0.684	5.00	1	02/24/23 19:03	JMV	V30175
Bis(2-Chloroethoxy)methane	<0.468	µg/L	0.468	5.00	1	02/24/23 19:03	JMV	V30175
Bis(2-Chloroethyl)ether	<1.04	µg/L	1.04	5.00	1	02/24/23 19:03	JMV	V30175
Bis(2-Chloroisopropyl)ether	<1.08	µg/L	1.08	5.00	1	02/24/23 19:03	JMV	V30175
Bis(2-ethylhexyl)phthalate	5.73 J	µg/L	3.46	10.0	1	02/24/23 19:03	JMV	V30175
4-Bromophenyl phenyl ether	<1.11	µg/L	1.11	5.00	1	02/24/23 19:03	JMV	V30175
Butyl benzyl phthalate	<1.83	µg/L	1.83	5.00	1	02/24/23 19:03	JMV	V30175
4-Chloro-3-methylphenol	<1.18	µg/L	1.18	5.00	1	02/24/23 19:03	JMV	V30175
4-Chloroaniline	<1.33	µg/L	1.33	5.00	1	02/24/23 19:03	JMV	V30175
2-Chloronaphthalene	<1.83	µg/L	1.83	20.0	1	02/24/23 19:03	JMV	V30175
2-Chlorophenol	<0.938	µg/L	0.938	10.0	1	02/24/23 19:03	JMV	V30175
4-Chlorophenyl phenyl ether	<1.71	µg/L	1.71	5.00	1	02/24/23 19:03	JMV	V30175
Chrysene	<0.405	µg/L	0.405	2.00	1	02/24/23 19:03	JMV	V30175
Dibenz(a,h)anthracene	<0.434	µg/L	0.434	2.00	1	02/24/23 19:03	JMV	V30175
Dibenzofuran	<0.856	µg/L	0.856	5.00	1	02/24/23 19:03	JMV	V30175
1,2-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 19:03	JMV	V30175
1,3-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 19:03	JMV	V30175
1,4-Dichlorobenzene	<2.05	µg/L	2.05	5.00	1	02/24/23 19:03	JMV	V30175
3,3'-Dichlorobenzidine	<1.89	µg/L	1.89	5.00	1	02/24/23 19:03	JMV	V30175
2,4-Dichlorophenol	<1.46	µg/L	1.46	10.0	1	02/24/23 19:03	JMV	V30175
Diethyl phthalate	<0.745	µg/L	0.745	5.00	1	02/24/23 19:03	JMV	V30175

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Dimethyl phthalate	<0.939	µg/L	0.939	5.00	1	02/24/23 19:03	JMV	V30175
2,4-Dimethylphenol	<1.57	µg/L	1.57	20.0	1	02/24/23 19:03	JMV	V30175
Di-n-butyl phthalate	<2.06	µg/L	2.06	5.00	1	02/24/23 19:03	JMV	V30175
4,6-Dinitro-2-methylphenol	<2.07	µg/L	2.07	10.0	1	02/24/23 19:03	JMV	V30175
2,4-Dinitrophenol	<1.92	µg/L	1.92	10.0	1	02/24/23 19:03	JMV	V30175
2,4-Dinitrotoluene	<1.11	µg/L	1.11	5.00	1	02/24/23 19:03	JMV	V30175
2,6-Dinitrotoluene	<0.809	µg/L	0.809	5.00	1	02/24/23 19:03	JMV	V30175
Di-n-Octyl Phthalate	<1.65	µg/L	1.65	5.00	1	02/24/23 19:03	JMV	V30175
Fluoranthene	<0.250	µg/L	0.250	2.00	1	02/24/23 19:03	JMV	V30175
Fluorene	<0.807	µg/L	0.807	2.00	1	02/24/23 19:03	JMV	V30175
Hexachlorobenzene	<0.979	µg/L	0.979	5.00	1	02/24/23 19:03	JMV	V30175
Hexachlorobutadiene	<2.73	µg/L	2.73	5.00	1	02/24/23 19:03	JMV	V30175
Hexachlorocyclopentadiene	<2.05	µg/L	2.05	5.00	1	02/24/23 19:03	JMV	V30175
Hexachloroethane	<1.76	µg/L	1.76	5.00	1	02/24/23 19:03	JMV	V30175
Indeno(1,2,3-cd)pyrene	<0.477	µg/L	0.477	2.00	1	02/24/23 19:03	JMV	V30175
Isophorone	<0.444	µg/L	0.444	5.00	1	02/24/23 19:03	JMV	V30175
1-Methylnaphthalene	<1.14	µg/L	1.14	2.00	1	02/24/23 19:03	JMV	V30175
2-Methylnaphthalene	<0.666	µg/L	0.666	2.00	1	02/24/23 19:03	JMV	V30175
2-Methylphenol	<1.15	µg/L	1.15	5.00	1	02/24/23 19:03	JMV	V30175
3&4 Methylphenol	<0.880	µg/L	0.880	10.0	1	02/24/23 19:03	JMV	V30175
Naphthalene	<0.728	µg/L	0.728	2.00	1	02/24/23 19:03	JMV	V30175
2-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 19:03	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89454**

Sample ID : **TMW-2**

Matrix: **Aqueous**

Sampled: **2/21/2023 13:15**

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
3-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 19:03	JMV	V30175
4-Nitroaniline	<1.53	µg/L	1.53	5.00	1	02/24/23 19:03	JMV	V30175
Nitrobenzene	<0.905	µg/L	0.905	5.00	1	02/24/23 19:03	JMV	V30175
2-Nitrophenol	<0.493	µg/L	0.493	5.00	1	02/24/23 19:03	JMV	V30175
4-Nitrophenol	<1.23	µg/L	1.23	10.0	1	02/24/23 19:03	JMV	V30175
N-Nitrosodimethylamine	<0.450	µg/L	0.450	5.00	1	02/24/23 19:03	JMV	V30175
N-Nitrosodiphenylamine	<1.10	µg/L	1.10	5.00	1	02/24/23 19:03	JMV	V30175
N-Nitroso-di-n-propylamine	<0.641	µg/L	0.641	5.00	1	02/24/23 19:03	JMV	V30175
Pentachlorophenol	<1.43	µg/L	1.43	5.00	1	02/24/23 19:03	JMV	V30175
Phenanthrene	<0.428	µg/L	0.428	2.00	1	02/24/23 19:03	JMV	V30175
Phenol	<0.651	µg/L	0.651	5.00	1	02/24/23 19:03	JMV	V30175
Pyrene	<0.434	µg/L	0.434	2.00	1	02/24/23 19:03	JMV	V30175
1,2,4-Trichlorobenzene	<2.21	µg/L	2.21	5.00	1	02/24/23 19:03	JMV	V30175
2,4,5-Trichlorophenol	<1.31	µg/L	1.31	5.00	1	02/24/23 19:03	JMV	V30175
2,4,6-Trichlorophenol	<1.32	µg/L	1.32	5.00	1	02/24/23 19:03	JMV	V30175
Surrogate: Phenol-d5	28.8		Limits: 11-100%		1	02/24/23 19:03	JMV	8270E
Surrogate: 2-Fluorobiphenyl	80.8		Limits: 44-119%		1	02/24/23 19:03	JMV	V30175
Surrogate: 2-Fluorophenol	43.0		Limits: 19-119%		1	02/24/23 19:03	JMV	V30175
Surrogate: Nitrobenzene-d5	69.4		Limits: 44-120%		1	02/24/23 19:03	JMV	V30175
Surrogate: 4-Terphenyl-d14	94.6		Limits: 50-134%		1	02/24/23 19:03	JMV	V30175
Surrogate: 2,4,6-Tribromophenol	92.7		Limits: 43-140%		1	02/24/23 19:03	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89455**

Sample ID : **TMW-3**

Matrix: **Aqueous**

Sampled: **2/21/2023 14:45**

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	49	mg/L	0.8	5	1	02/27/23 09:45	SLO	2320B-2011
Ammonia Nitrogen	0.42	mg/L	0.04	0.10	1	02/27/23 14:53	CMJ	4500-NH3G-2011
Chloride	18.6	mg/L	0.370	1.00	1	02/28/23 19:02	CMJ	300.0
Nitrate+Nitrite-N	<0.044	mg/L	0.044	0.100	1	02/24/23 15:31	CMJ	353.2
pH	7.3 H	s.u.			1	02/24/23 09:56	SMW	4500H+B-2011
Phosphorus	0.511	mg/L	0.212	0.500	1	03/02/23 13:48	ANH	365.4

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89455**

Sample ID : **TMW-3**

Matrix: **Aqueous**

Sampled: **2/21/2023 14:45**

Analytical Method: 8015C DRO

Prep Batch(es): **V30141** 02/27/23 09:08

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Diesel Range Organics (C10-C28)	<134	µg/L	134	500	1	02/27/23 18:23	AMP	V30177
Surrogate: OTP Surrogate	52.0		Limits: 50-150%		1	02/27/23 18:23	AMP	8015C DRO

Analytical Method: 8015C GRO

Prep Batch(es): **V30114** 02/24/23 08:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Gasoline Range Organics (C6-C10)	<38.0	µg/L	38.0	200	1	02/24/23 12:22	TBL	V30115
Surrogate: a,a,a-Trifluorotoluene	96.4		Limits: 57-132%		1	02/24/23 12:22	TBL	8015C GRO

Analytical Method: 8260D

Prep Batch(es): **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<1.80	µg/L	1.80	5.00	1	02/25/23 05:05	MSA	V30155
Acrolein	<2.00	µg/L	2.00	5.00	1	02/25/23 05:05	MSA	V30155
Acrylonitrile	<0.230	µg/L	0.230	5.00	1	02/25/23 05:05	MSA	V30155
Benzene	<0.180	µg/L	0.180	0.500	1	02/25/23 05:05	MSA	V30155
Bromobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 05:05	MSA	V30155
Bromochloromethane	<0.420	µg/L	0.420	1.00	1	02/25/23 05:05	MSA	V30155
Bromodichloromethane	<0.160	µg/L	0.160	0.500	1	02/25/23 05:05	MSA	V30155
Bromoform	<1.50	µg/L	1.50	5.00	1	02/25/23 05:05	MSA	V30155
Bromomethane	<0.280	µg/L	0.280	1.00	1	02/25/23 05:05	MSA	V30155

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89455**

Sample ID : **TMW-3**

Matrix: **Aqueous**

Sampled: **2/21/2023 14:45**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Butylbenzene	<0.185	µg/L	0.185	1.00	1	02/25/23 05:05	MSA	V30155
sec-Butyl benzene	<0.200	µg/L	0.200	0.500	1	02/25/23 05:05	MSA	V30155
tert-Butyl benzene	<0.920	µg/L	0.920	2.00	1	02/25/23 05:05	MSA	V30155
Carbon Disulfide	<0.150	µg/L	0.150	5.00	1	02/25/23 05:05	MSA	V30155
Carbon Tetrachloride	<0.180	µg/L	0.180	0.500	1	02/25/23 05:05	MSA	V30155
Chlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 05:05	MSA	V30155
Chlorodibromomethane	<0.190	µg/L	0.190	0.500	1	02/25/23 05:05	MSA	V30155
Chloroethane	<0.430	µg/L	0.430	1.00	1	02/25/23 05:05	MSA	V30155
Chloroform	<0.220	µg/L	0.220	0.500	1	02/25/23 05:05	MSA	V30155
Chloromethane	<0.220	µg/L	0.220	0.500	1	02/25/23 05:05	MSA	V30155
2-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 05:05	MSA	V30155
4-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	02/25/23 05:05	MSA	V30155
Di-Isopropyl Ether (DIPE)	<0.960	µg/L	0.960	5.00	1	02/25/23 05:05	MSA	V30155
1,2-Dibromo-3-Chloropropane	<1.10	µg/L	1.10	2.00	1	02/25/23 05:05	MSA	V30155
1,2-Dibromoethane	<0.200	µg/L	0.200	0.500	1	02/25/23 05:05	MSA	V30155
Dibromomethane	<0.230	µg/L	0.230	0.500	1	02/25/23 05:05	MSA	V30155
1,2-Dichlorobenzene	<0.220	µg/L	0.220	0.500	1	02/25/23 05:05	MSA	V30155
1,3-Dichlorobenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 05:05	MSA	V30155
1,4-Dichlorobenzene	<0.210	µg/L	0.210	0.500	1	02/25/23 05:05	MSA	V30155
Dichlorodifluoromethane	<1.20	µg/L	1.20	5.00	1	02/25/23 05:05	MSA	V30155
1,1-Dichloroethane	<0.240	µg/L	0.240	0.500	1	02/25/23 05:05	MSA	V30155
1,2-Dichloroethane	<0.150	µg/L	0.150	0.500	1	02/25/23 05:05	MSA	V30155

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89455**

Sample ID : **TMW-3**

Matrix: **Aqueous**

Sampled: **2/21/2023 14:45**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
1,1-Dichloroethene	<0.150	µg/L	0.150	0.500	1	02/25/23 05:05	MSA	V30155
cis-1,2-Dichloroethene	<0.200	µg/L	0.200	0.500	1	02/25/23 05:05	MSA	V30155
trans-1,2-Dichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 05:05	MSA	V30155
1,2-Dichloropropane	<0.190	µg/L	0.190	0.500	1	02/25/23 05:05	MSA	V30155
1,3-Dichloropropane	<0.130	µg/L	0.130	0.500	1	02/25/23 05:05	MSA	V30155
2,2-Dichloropropane	<0.210	µg/L	0.210	2.00	1	02/25/23 05:05	MSA	V30155
1,1-Dichloropropene	<0.200	µg/L	0.200	0.500	1	02/25/23 05:05	MSA	V30155
cis-1,3-Dichloropropene	<0.210	µg/L	0.210	0.500	1	02/25/23 05:05	MSA	V30155
trans-1,3-Dichloropropene	<0.150	µg/L	0.150	0.500	1	02/25/23 05:05	MSA	V30155
Ethanol	<42.0	µg/L	42.0	200	1	02/28/23 22:06	MSA	V30291
Ethylbenzene	<0.170	µg/L	0.170	0.500	1	02/25/23 05:05	MSA	V30155
Ethyl Tertiary Butyl Ether (ETBE)	<1.80	µg/L	1.80	10.0	1	02/25/23 05:05	MSA	V30155
Hexachlorobutadiene	<0.350	µg/L	0.350	2.00	1	02/25/23 05:05	MSA	V30155
n-Hexane	<1.30	µg/L	1.30	10.0	1	02/25/23 05:05	MSA	V30155
2-Hexanone	<0.380	µg/L	0.380	5.00	1	02/25/23 05:05	MSA	V30155
Isopropylbenzene	<0.180	µg/L	0.180	5.00	1	02/25/23 05:05	MSA	V30155
4-Isopropyl toluene	<0.089	µg/L	0.089	0.500	1	02/25/23 05:05	MSA	V30155
Methyl Ethyl Ketone (MEK)	<0.710	µg/L	0.710	5.00	1	02/25/23 05:05	MSA	V30155
Methyl tert-butyl ether (MTBE)	<0.140	µg/L	0.140	0.500	1	02/25/23 05:05	MSA	V30155
4-Methyl-2-Pentanone	<1.00	µg/L	1.00	5.00	1	02/25/23 05:05	MSA	V30155
Methylene Chloride	<0.330	µg/L	0.330	1.00	1	02/25/23 05:05	MSA	V30155
Naphthalene	<0.470	µg/L	0.470	1.00	1	02/25/23 05:05	MSA	V30155

Qualifiers/ DF Dilution Factor H Beyond holding time
Definitions J Estimated value MQL Method Quantitation Limit

00019

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Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Propylbenzene	<0.190	µg/L	0.190	0.500	1	02/25/23 05:05	MSA	V30155
Styrene	<0.220	µg/L	0.220	0.500	1	02/25/23 05:05	MSA	V30155
1,1,1,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 05:05	MSA	V30155
1,1,2,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 05:05	MSA	V30155
Tetrachloroethene	<0.220	µg/L	0.220	0.500	1	02/25/23 05:05	MSA	V30155
Toluene	<0.220	µg/L	0.220	0.500	1	02/25/23 05:05	MSA	V30155
1,2,3-Trichlorobenzene	<0.380	µg/L	0.380	2.00	1	02/25/23 05:05	MSA	V30155
1,2,4-Trichlorobenzene	<0.310	µg/L	0.310	1.00	1	02/25/23 05:05	MSA	V30155
1,1,1-Trichloroethane	<0.160	µg/L	0.160	0.500	1	02/25/23 05:05	MSA	V30155
1,1,2-Trichloroethane	<0.096	µg/L	0.096	0.500	1	02/25/23 05:05	MSA	V30155
Trichloroethene	<0.180	µg/L	0.180	0.500	1	02/25/23 05:05	MSA	V30155
Trichlorofluoromethane	<0.180	µg/L	0.180	0.500	1	02/25/23 05:05	MSA	V30155
1,2,3-Trichloropropane	<0.270	µg/L	0.270	1.00	1	02/25/23 05:05	MSA	V30155
1,3,5-Trimethylbenzene	<0.180	µg/L	0.180	0.500	1	02/25/23 05:05	MSA	V30155
Vinyl Acetate	<1.00	µg/L	1.00	2.00	1	02/25/23 05:05	MSA	V30155
Vinyl Chloride	<0.170	µg/L	0.170	0.500	1	02/25/23 05:05	MSA	V30155
o-Xylene	<0.210	µg/L	0.210	0.500	1	02/25/23 05:05	MSA	V30155
m,p-Xylene	<0.420	µg/L	0.420	1.00	1	02/25/23 05:05	MSA	V30155

Qualifiers/ Definitions	DF	Dilution Factor Estimated value	H	Beyond holding time
	J		MQL	Method Quantitation Limit

00019

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/23/2023

Report Number : **23-054-0100**

REPORT OF ANALYSIS

Lab No : **89455**

Sample ID : **TMW-3**

Matrix: **Aqueous**

Sampled: **2/21/2023 14:45**

Analytical Method: 8260D **Prep Batch(es):** **V30154** 02/24/23 14:00 **V30290** 02/28/23 09:00
Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Xylene (Total)	<0.21	µg/L	0.210	0.500	1	02/25/23 05:05		V30155
Surrogate: 4-Bromofluorobenzene	93.6		Limits: 80-124%		1	02/25/23 05:05	MSA	V30155
Surrogate: Dibromofluoromethane	90.4		Limits: 75-129%		1	02/25/23 05:05	MSA	V30155
Surrogate: 1,2-Dichloroethane - d4	84.6		Limits: 63-136%		1	02/25/23 05:05	MSA	V30155
Surrogate: Toluene-d8	93.6		Limits: 77-123%		1	02/25/23 05:05	MSA	V30155
Surrogate: 4-Bromofluorobenzene	100		Limits: 80-124%		1	02/28/23 22:06	MSA	V30291
Surrogate: Dibromofluoromethane	101		Limits: 75-129%		1	02/28/23 22:06	MSA	V30291
Surrogate: 1,2-Dichloroethane - d4	95.2		Limits: 63-136%		1	02/28/23 22:06	MSA	V30291
Surrogate: Toluene-d8	99.4		Limits: 77-123%		1	02/28/23 22:06	MSA	V30291

Analytical Method: 8270E **Prep Batch(es):** **V30094** 02/24/23 09:01
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acenaphthene	<0.302	µg/L	0.302	2.00	1	02/24/23 19:26	JMV	V30175
Acenaphthylene	<0.297	µg/L	0.297	2.00	1	02/24/23 19:26	JMV	V30175
Aniline	<2.05	µg/L	2.05	5.00	1	02/24/23 19:26	JMV	V30175
Anthracene	<0.836	µg/L	0.836	2.00	1	02/24/23 19:26	JMV	V30175
Benzo(a)anthracene	<0.637	µg/L	0.637	2.00	1	02/24/23 19:26	JMV	V30175
Benzo(a)pyrene	<1.02	µg/L	1.02	2.00	1	02/24/23 19:26	JMV	V30175
Benzo(b)fluoranthene	<2.49	µg/L	2.49	5.00	1	02/24/23 19:26	JMV	V30175
Benzo(g,h,i)perylene	<1.01	µg/L	1.01	5.00	1	02/24/23 19:26	JMV	V30175
Benzo(k)fluoranthene	<1.99	µg/L	1.99	5.00	1	02/24/23 19:26	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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REPORT OF ANALYSIS

Lab No : **89455**

Sample ID : **TMW-3**

Matrix: **Aqueous**

Sampled: **2/21/2023 14:45**

Analytical Method: 8270E

Prep Batch(es): **V30094** 02/24/23 09:01

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Benzoic Acid	<1.10	µg/L	1.10	10.0	1	02/24/23 19:26	JMV	V30175
Benzyl alcohol	<0.684	µg/L	0.684	5.00	1	02/24/23 19:26	JMV	V30175
Bis(2-Chloroethoxy)methane	<0.468	µg/L	0.468	5.00	1	02/24/23 19:26	JMV	V30175
Bis(2-Chloroethyl)ether	<1.04	µg/L	1.04	5.00	1	02/24/23 19:26	JMV	V30175
Bis(2-Chloroisopropyl)ether	<1.08	µg/L	1.08	5.00	1	02/24/23 19:26	JMV	V30175
Bis(2-ethylhexyl)phthalate	10.6	µg/L	3.46	10.0	1	02/24/23 19:26	JMV	V30175
4-Bromophenyl phenyl ether	<1.11	µg/L	1.11	5.00	1	02/24/23 19:26	JMV	V30175
Butyl benzyl phthalate	<1.83	µg/L	1.83	5.00	1	02/24/23 19:26	JMV	V30175
4-Chloro-3-methylphenol	<1.18	µg/L	1.18	5.00	1	02/24/23 19:26	JMV	V30175
4-Chloroaniline	<1.33	µg/L	1.33	5.00	1	02/24/23 19:26	JMV	V30175
2-Chloronaphthalene	<1.83	µg/L	1.83	20.0	1	02/24/23 19:26	JMV	V30175
2-Chlorophenol	<0.938	µg/L	0.938	10.0	1	02/24/23 19:26	JMV	V30175
4-Chlorophenyl phenyl ether	<1.71	µg/L	1.71	5.00	1	02/24/23 19:26	JMV	V30175
Chrysene	<0.405	µg/L	0.405	2.00	1	02/24/23 19:26	JMV	V30175
Dibenz(a,h)anthracene	<0.434	µg/L	0.434	2.00	1	02/24/23 19:26	JMV	V30175
Dibenzofuran	<0.856	µg/L	0.856	5.00	1	02/24/23 19:26	JMV	V30175
1,2-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 19:26	JMV	V30175
1,3-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	02/24/23 19:26	JMV	V30175
1,4-Dichlorobenzene	<2.05	µg/L	2.05	5.00	1	02/24/23 19:26	JMV	V30175
3,3'-Dichlorobenzidine	<1.89	µg/L	1.89	5.00	1	02/24/23 19:26	JMV	V30175
2,4-Dichlorophenol	<1.46	µg/L	1.46	10.0	1	02/24/23 19:26	JMV	V30175
Diethyl phthalate	<0.745	µg/L	0.745	5.00	1	02/24/23 19:26	JMV	V30175

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

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Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Dimethyl phthalate	<0.939	µg/L	0.939	5.00	1	02/24/23 19:26	JMV	V30175
2,4-Dimethylphenol	<1.57	µg/L	1.57	20.0	1	02/24/23 19:26	JMV	V30175
Di-n-butyl phthalate	<2.06	µg/L	2.06	5.00	1	02/24/23 19:26	JMV	V30175
4,6-Dinitro-2-methylphenol	<2.07	µg/L	2.07	10.0	1	02/24/23 19:26	JMV	V30175
2,4-Dinitrophenol	<1.92	µg/L	1.92	10.0	1	02/24/23 19:26	JMV	V30175
2,4-Dinitrotoluene	<1.11	µg/L	1.11	5.00	1	02/24/23 19:26	JMV	V30175
2,6-Dinitrotoluene	<0.809	µg/L	0.809	5.00	1	02/24/23 19:26	JMV	V30175
Di-n-Octyl Phthalate	<1.65	µg/L	1.65	5.00	1	02/24/23 19:26	JMV	V30175
Fluoranthene	<0.250	µg/L	0.250	2.00	1	02/24/23 19:26	JMV	V30175
Fluorene	<0.807	µg/L	0.807	2.00	1	02/24/23 19:26	JMV	V30175
Hexachlorobenzene	<0.979	µg/L	0.979	5.00	1	02/24/23 19:26	JMV	V30175
Hexachlorobutadiene	<2.73	µg/L	2.73	5.00	1	02/24/23 19:26	JMV	V30175
Hexachlorocyclopentadiene	<2.05	µg/L	2.05	5.00	1	02/24/23 19:26	JMV	V30175
Hexachloroethane	<1.76	µg/L	1.76	5.00	1	02/24/23 19:26	JMV	V30175
Indeno(1,2,3-cd)pyrene	<0.477	µg/L	0.477	2.00	1	02/24/23 19:26	JMV	V30175
Isophorone	<0.444	µg/L	0.444	5.00	1	02/24/23 19:26	JMV	V30175
1-Methylnaphthalene	<1.14	µg/L	1.14	2.00	1	02/24/23 19:26	JMV	V30175
2-Methylnaphthalene	<0.666	µg/L	0.666	2.00	1	02/24/23 19:26	JMV	V30175
2-Methylphenol	<1.15	µg/L	1.15	5.00	1	02/24/23 19:26	JMV	V30175
3&4 Methylphenol	<0.880	µg/L	0.880	10.0	1	02/24/23 19:26	JMV	V30175
Naphthalene	<0.728	µg/L	0.728	2.00	1	02/24/23 19:26	JMV	V30175
2-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 19:26	JMV	V30175

Qualifiers/ Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

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Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
3-Nitroaniline	<1.39	µg/L	1.39	5.00	1	02/24/23 19:26	JMV	V30175
4-Nitroaniline	<1.53	µg/L	1.53	5.00	1	02/24/23 19:26	JMV	V30175
Nitrobenzene	<0.905	µg/L	0.905	5.00	1	02/24/23 19:26	JMV	V30175
2-Nitrophenol	<0.493	µg/L	0.493	5.00	1	02/24/23 19:26	JMV	V30175
4-Nitrophenol	<1.23	µg/L	1.23	10.0	1	02/24/23 19:26	JMV	V30175
N-Nitrosodimethylamine	<0.450	µg/L	0.450	5.00	1	02/24/23 19:26	JMV	V30175
N-Nitrosodiphenylamine	<1.10	µg/L	1.10	5.00	1	02/24/23 19:26	JMV	V30175
N-Nitroso-di-n-propylamine	<0.641	µg/L	0.641	5.00	1	02/24/23 19:26	JMV	V30175
Pentachlorophenol	<1.43	µg/L	1.43	5.00	1	02/24/23 19:26	JMV	V30175
Phenanthrene	<0.428	µg/L	0.428	2.00	1	02/24/23 19:26	JMV	V30175
Phenol	<0.651	µg/L	0.651	5.00	1	02/24/23 19:26	JMV	V30175
Pyrene	<0.434	µg/L	0.434	2.00	1	02/24/23 19:26	JMV	V30175
1,2,4-Trichlorobenzene	<2.21	µg/L	2.21	5.00	1	02/24/23 19:26	JMV	V30175
2,4,5-Trichlorophenol	<1.31	µg/L	1.31	5.00	1	02/24/23 19:26	JMV	V30175
2,4,6-Trichlorophenol	<1.32	µg/L	1.32	5.00	1	02/24/23 19:26	JMV	V30175
Surrogate: Phenol-d5	30.6		Limits: 11-100%		1	02/24/23 19:26	JMV	8270E
Surrogate: 2-Fluorobiphenyl	82.2		Limits: 44-119%		1	02/24/23 19:26	JMV	V30175
Surrogate: 2-Fluorophenol	44.0		Limits: 19-119%		1	02/24/23 19:26	JMV	V30175
Surrogate: Nitrobenzene-d5	69.4		Limits: 44-120%		1	02/24/23 19:26	JMV	V30175
Surrogate: 4-Terphenyl-d14	98.8		Limits: 50-134%		1	02/24/23 19:26	JMV	V30175
Surrogate: 2,4,6-Tribromophenol	97.0		Limits: 43-140%		1	02/24/23 19:26	JMV	V30175

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

114 OAKMONT DRIVE
GREENVILLE, N.C. 27858

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 9

WAYPOINT ANALYTICAL (MISC. TESTING)
ATTN: TERRI COLE
P.O. BOX 240543
CHARLOTTE, NC 24224-0543

DATE COLLECTED: 02/21/23
DATE REPORTED : 03/01/23

REVIEWED BY: 

PARAMETERS	S-1	S-2	MH-2	TMW-1	TMW-2	Analysis		Method Code
						Date	Analyst	
Salinity, ppt	0.10	0.11	0.10	0.05	0.07	02/27/23	ADR	2520B-11
Salinity Analysis Temperature, °C	23	22	22	23	24	02/27/23	ADR	2550B-10

114 OAKMONT DRIVE
GREENVILLE, N.C. 27858

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 9

WAYPOINT ANALYTICAL (MISC. TESTING)
ATTN: TERRI COLE
P.O. BOX 240543
CHARLOTTE, NC 24224-0543

DATE COLLECTED: 02/21/23
DATE REPORTED : 03/01/23

REVIEWED BY: 

PARAMETERS	TMW-W	Analysis		Method
		Date	Analyst	Code
Salinity, ppt	0.12	02/27/23	ADR	2520B-11
Salinity Analysis Temperature, °C	22	02/27/23	ADR	2550B-10

9



02/23/2023 13:58:12

Export Batch Report

Export Batch Id : 3052EXP

449 Springbrook Rd, Charlotte, NC 28217

Main 704.529.6364

www.waypointanalytical.com

Created: 2/23/2023 13:58:02

Computer: WPALMS-077

User: Angela D Overcash

Project Manager: Angela D Overcash

To: Environment 1, Inc.

P. O. Box 7085 / 114 Oakmont Dr.

Greenville, NC 278357085

From: Waypoint Analytical, LLC (Charlotte)

449 Springbrook Road

Charlotte, NC 28217

704-529-6364

Report No	Due Date	Sample Date	Customer Sample No	Rush Matrix Lab No	Method No	Fee Code Description
23-054-0100	03/02/2023	02/21/2023 16:30	S-1	AQU	89450 SM-2520	Salinity
23-054-0100	03/02/2023	02/21/2023 15:45	S-2	AQU	89451 SM-2520	Salinity
23-054-0100	03/02/2023	02/21/2023 08:58	MH-2	AQU	89452 SM-2520	Salinity
23-054-0100	03/02/2023	02/21/2023 12:32	TMW-1	AQU	89453 SM-2520	Salinity
23-054-0100	03/02/2023	02/21/2023 13:15	TMW-2	AQU	89454 SM-2520	Salinity
23-054-0100	03/02/2023	02/21/2023 14:45	TMW-3	AQU	89455 SM-2520	Salinity

Sampled By	Method of Shipment <i>FED EX</i>	Blank / Cooler Temp. <i>0.5°C</i>
Remarks		
Relinquished By (sign)	Date / Time	Received By (sign)
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Relinquished By (sign)	Date / Time	Received By (sign)
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
	Date / Time	Date / Time
		<i>2/24/23 10:12</i>



2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

Waypoint Analytical LLC, a national leader in environmental and agricultural testing, announces the successful transaction to acquire Environment 1, Inc., a Greenville, NC based environmental testing company.

Environment 1, Inc., an environmental testing and field services provider has been a business concern since 1974. The company employs very experienced, educated, and talented scientists, laboratory technicians, and support personnel in Greenville, NC. Their expertise is supported by environmental certifications held in the markets served including comprehensive environmental laboratory certifications granted by the State of North Carolina.

Environment 1, Inc. provides a wide array of laboratory and field services to industries, municipalities, local and state agencies, and residential customers. The wastewater and drinking water regulatory compliance testing offered by the company is unparalleled in quality and service consistency. This has allowed for steady growth for decades through client recommendations and word of mouth.

The acquisition of Environment 1, Inc. allows Waypoint Analytical LLC, now with three laboratory locations and numerous field services and support locations in North Carolina to provide more support and analytical depth with greater expediency than any other laboratory in the state. This acquisition reflects the ongoing efforts of Waypoint Analytical LLC to make available the best laboratory services and field support services to its clients wherever they are located.

Comment from **Nathan A. Pera IV**, Waypoint Analytical LLC's Environmental Division President: "The addition of Environment 1 to the Waypoint Analytical Family is just one more step toward our goal of improving the lives of the people in the communities in which we operate. We do this by offering higher quality, client-focused and ever-expanding laboratory services to the businesses and agencies therein. We are extremely pleased to welcome the talented Environment 1 Team to our family. Their dedication to service, their reputation for outstanding quality, and the E-1 geographic footprint further strengthen Waypoint's reputation and helps cement our ranking as the best in lab service. Expanding our footprint to include the addition of the laboratory in eastern North Carolina demonstrates our commitment to the industries and to the communities that Waypoint Analytical calls home. Waypoint is embracing those clients and communities who are responsible for our success."

Comment from **Mr. Mark Oliveira**, President of Environment 1, Inc.: "Elizabeth and our team at Environment 1 have dedicated many years to offering the best quality and service to our customers. The Waypoint Analytical vision of bringing lab testing and lab support services closer to the people needing those services, especially in those communities that other lab companies have no interest in investing in, made our choice for the future an easy one. Waypoint allows the Environment 1 lab team to expand upon our 49 years of dedication to our customers and our community. They bring all of the resources that smaller labs cannot access. We look forward to tapping into the diverse talent and experience of Waypoint's personnel, redundant North Carolina certifications, equipment, and wide-ranging capabilities. Waypoint offers all the advantages of a large laboratory while focusing on the personalized service that our clients deserve. Our team is excited to be joining forces with Waypoint. We look forward to providing more resources to our customers, employees, and community."

For more information, please visit www.waypointanalytical.com or contact:

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Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Analytical Batch: V30135
Analysis Method: 2320B-2011
Analysis Description: Alkalinity

Lab Reagent Blank LRB Matrix: AQU
Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Alkalinity (as CaCO3)	mg/L	<0.8	0.8	5	02/27/23 09:45

Laboratory Control Sample LCS

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Alkalinity (as CaCO3)	mg/L	250	238	95.0	90-110

Duplicate V 89145-DUP

Parameter	Units	Result	DUP Result	RPD	Max RPD	Analyzed
Alkalinity (as CaCO3)	mg/L	247	246	0.4	20	02/27/23 09:45

Duplicate V 99949-DUP

Parameter	Units	Result	DUP Result	RPD	Max RPD	Analyzed
Alkalinity (as CaCO3)	mg/L	8	8	0.0	20	02/27/23 09:45

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30318 **QC Analytical Batch(es):** V30358
QC Prep Batch Method: 300.0 (Prep) **Analysis Method:** 300.0
Analysis Description: Anions by Ion Chromatography

Lab Reagent Blank LRB-V30318 Matrix: AQU
Associated Lab Samples: 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Chloride	mg/L	<0.370	0.370	1.00	02/28/23 11:25

Laboratory Control Sample LCS-V30318

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Chloride	mg/L	40.0	39.8	100	90-110

Matrix Spike & Matrix Spike Duplicate V 89947-MS-V30318 V 89947-MSD-V30318

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Chloride	mg/L	20.2	40.0	40.0	60.1	60.1	100	100	90-110	0.0	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30357 **QC Analytical Batch(es):** V30361
QC Prep Batch Method: 300.0 (Prep) **Analysis Method:** 300.0
Analysis Description: Anions by Ion Chromatography

Lab Reagent Blank LRB-V30357 Matrix: AQU
Associated Lab Samples: 89450, 89451, 89452, 89453

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Chloride	mg/L	<0.370	0.370	1.00	03/02/23 12:34

Laboratory Control Sample LCS-V30357

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Chloride	mg/L	40.0	40.0	100	90-110

Matrix Spike & Matrix Spike Duplicate V 89452-MS-V30357 V 89452-MSD-V30357

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Chloride	mg/L	18.2	40.0	40.0	58.8	58.8	102	102	90-110	0.0	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30099 **QC Analytical Batch(es):** V30180,V30296
QC Prep Batch Method: EPA-353.2 (PREP) **Analysis Method:** 353.2
Analysis Description: Nitrate + Nitrite Nitrogen

Lab Reagent Blank LRB-V30099 Matrix: AQU
Associated Lab Samples: 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Nitrate+Nitrite-N	mg/L	<0.044	0.044	0.100	02/24/23 15:31

Laboratory Control Sample LCS-V30099

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Nitrate+Nitrite-N	mg/L	1.00	0.980	98.0	90-110

Matrix Spike & Matrix Spike Duplicate V 89451-MS-V30099 V 89451-MSD-V30099

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Nitrate+Nitrite-N	mg/L	1.22	1.00	1.00	2.21	2.16	99.0	94.0	80-120	2.2	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30100 **QC Analytical Batch(es):** V30180,V30296
QC Prep Batch Method: EPA-353.2 (PREP) **Analysis Method:** 353.2
Analysis Description: Nitrate + Nitrite Nitrogen

Lab Reagent Blank LRB-V30100 Matrix: AQU
Associated Lab Samples: 89450

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Nitrate+Nitrite-N	mg/L	0.080	0.044	0.100	02/24/23 15:31

Laboratory Control Sample LCS-V30100

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Nitrate+Nitrite-N	mg/L	1.00	0.970	97.0	90-110

Matrix Spike & Matrix Spike Duplicate V 89450-MS-V30100 V 89450-MSD-V30100

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Nitrate+Nitrite-N	mg/L	1.00	1.00	1.00	2.01	1.94	101	94.0	80-120	3.5	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: L666896 **QC Analytical Batch(es):** L666962
QC Prep Batch Method: TKN/TKP Digestion **Analysis Method:** 365.4
Analysis Description: Total Phosphorus

Lab Reagent Blank LRB-L666896 Matrix: AQU
Associated Lab Samples: 89450, 89451, 89452, 89453, 89454

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Phosphorus	mg/L	<0.212	0.212	0.500	03/02/23 13:07

Laboratory Control Sample LCS-L666896

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Phosphorus	mg/L	2.00	2.14	107	80-120

Duplicate L 90919-DUP-L666896

Parameter	Units	Result	DUP Result	RPD	Max RPD	Analyzed
Phosphorus	mg/L	0.826	0.854	3.3	20.0	03/02/23 13:11

Matrix Spike L 90919-MS-L666896

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	%Rec Limits	Max RPD
Phosphorus	mg/L	0.826	2.00		2.61		89.0	70-130	

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: L667043 **QC Analytical Batch(es):** L667249
QC Prep Batch Method: TKN/TKP Digestion **Analysis Method:** 365.4
Analysis Description: Total Phosphorus

Lab Reagent Blank LRB-L667043 Matrix: AQU
Associated Lab Samples: 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Phosphorus	mg/L	<0.212	0.212	0.500	03/02/23 13:42

Laboratory Control Sample LCS-L667043

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Phosphorus	mg/L	2.00	1.90	95.0	80-120

Duplicate L 91596-DUP-L667043

Parameter	Units	Result	DUP Result	RPD	Max RPD	Analyzed
Phosphorus	mg/L	2.21	2.37	6.9	20.0	03/02/23 13:45

Matrix Spike L 91596-MS-L667043

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	%Rec Limits	Max RPD
Phosphorus	mg/L	2.21	2.00		3.82		81.0	70-130	

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Analytical Batch: V30090
Analysis Method: 4500H+B-2011
Analysis Description: pH

Laboratory Control Sample LCS

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
pH	s.u.	6.8	6.8	100	3.54-101.4

Laboratory Control Sample LCS21

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
pH	s.u.	6.8	6.9	101	3.54-101.4

Duplicate V 89452-DUP

Parameter	Units	Result	DUP Result	Criteria	Analyzed
pH	s.u.	6.2	6.2	+/- 0.1	02/24/23 09:56

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30152 **QC Analytical Batch(es):** V30239,V30662
QC Prep Batch Method: 4500-NH3G (Prep) **Analysis Method:** 4500-NH3G-2011
Analysis Description: Ammonia

Lab Reagent Blank LRB-V30152 Matrix: AQU
Associated Lab Samples: 89451, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Ammonia Nitrogen	mg/L	0.04	0.04	0.10	02/27/23 14:53

Laboratory Control Sample LCS-V30152

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Ammonia Nitrogen	mg/L	2.50	2.75	110	90-110

Matrix Spike & Matrix Spike Duplicate V 89270-MS-V30152 V 89270-MSD-V30152

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Ammonia Nitrogen	mg/L	14.2	2.50	2.50	16.0	15.6	72.0*	56.0*	80-120	2.5	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30707 **QC Analytical Batch(es):** V30787
QC Prep Batch Method: 4500-NH3G (Prep) **Analysis Method:** 4500-NH3G-2011
Analysis Description: Ammonia

Lab Reagent Blank LRB-V30707 Matrix: AQU
Associated Lab Samples: 89450, 89452, 89453, 89454

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Ammonia Nitrogen	mg/L	<0.04	0.04	0.10	03/13/23 12:19

Laboratory Control Sample LCS-V30707

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Ammonia Nitrogen	mg/L	2.50	2.43	97.0	90-110

Matrix Spike & Matrix Spike Duplicate V 89718-MS-V30707 V 89718-MSD-V30707

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Ammonia Nitrogen	mg/L	0.45	2.50	2.50	2.86	2.80	96.0	94.0	80-120	2.1	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30141 **QC Analytical Batch(es):** V30177
QC Prep Batch Method: 3510C **Analysis Method:** 8015C DRO
Analysis Description: Total Petroleum Hydrocarbons - Extractable

Lab Reagent Blank LRB-V30141 Matrix: AQU
Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	ML	Analyzed	% Recovery	% Rec Limits
Diesel Range Organics (C10-C28)	µg/L	<134	134	500	02/27/23 16:17		
OTP Surrogate (S)					02/27/23 16:17	82.7	50-150

Laboratory Control Sample & LCSD LCS-V30141 LCSD-V30141

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Diesel Range Organics (C10-C28)	µg/L	2000	2090	1230	105	61.5	53-135	51.8*	20.0
OTP Surrogate (S)					82.5	50.0	50-150		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30114 **QC Analytical Batch(es):** V30115
QC Prep Batch Method: 5030B **Analysis Method:** 8015C GRO
Analysis Description: Total Petroleum Hydrocarbons - Volatile

Lab Reagent Blank LRB-V30114 Matrix: AQU
Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Gasoline Range Organics (C6-C10)	µg/L	<38.0	38.0	200	02/24/23 09:34		
a,a,a-Trifluorotoluene (S)					02/24/23 09:34	99.2	57-132

Laboratory Control Sample LCS-V30114

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Gasoline Range Organics (C6-C10)	µg/L	1000	1190	119	60-138
a,a,a-Trifluorotoluene (S)				113	57-132

Matrix Spike & Matrix Spike Duplicate V 89450-MS-V30114 V 89450-MSD-V30114

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Gasoline Range Organics (C6-C10)	µg/L	< 38.0	1000	1000	1010	1080	101	108	69-130	6.6	24.0
a,a,a-Trifluorotoluene (S)							98.7	92.3	57-132		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30154 **QC Analytical Batch(es):** V30155
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30154 Matrix: AQU
Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Acetone	µg/L	<1.80	1.80	5.00	02/24/23 23:29		
Acrolein	µg/L	<2.00	2.00	5.00	02/24/23 23:29		
Acrylonitrile	µg/L	<0.230	0.230	5.00	02/24/23 23:29		
Benzene	µg/L	<0.180	0.180	0.500	02/24/23 23:29		
Bromobenzene	µg/L	<0.210	0.210	0.500	02/24/23 23:29		
Bromochloromethane	µg/L	<0.420	0.420	1.00	02/24/23 23:29		
Bromodichloromethane	µg/L	<0.160	0.160	0.500	02/24/23 23:29		
Bromoform	µg/L	<1.50	1.50	5.00	02/24/23 23:29		
Bromomethane	µg/L	<0.280	0.280	1.00	02/24/23 23:29		
n-Butylbenzene	µg/L	<0.185	0.185	1.00	02/24/23 23:29		
sec-Butyl benzene	µg/L	<0.200	0.200	0.500	02/24/23 23:29		
tert-Butyl benzene	µg/L	<0.920	0.920	2.00	02/24/23 23:29		
Carbon Disulfide	µg/L	<0.150	0.150	5.00	02/24/23 23:29		
Carbon Tetrachloride	µg/L	<0.180	0.180	0.500	02/24/23 23:29		
Chlorobenzene	µg/L	<0.190	0.190	0.500	02/24/23 23:29		
Chlorodibromomethane	µg/L	<0.190	0.190	0.500	02/24/23 23:29		
Chloroethane	µg/L	<0.430	0.430	1.00	02/24/23 23:29		
Chloroform	µg/L	<0.220	0.220	0.500	02/24/23 23:29		
Chloromethane	µg/L	<0.220	0.220	0.500	02/24/23 23:29		
2-Chlorotoluene	µg/L	<0.200	0.200	0.500	02/24/23 23:29		
4-Chlorotoluene	µg/L	<0.200	0.200	0.500	02/24/23 23:29		
Di-Isopropyl Ether (DIPE)	µg/L	<0.960	0.960	5.00	02/24/23 23:29		
1,2-Dibromo-3-Chloropropane	µg/L	<1.10	1.10	2.00	02/24/23 23:29		
1,2-Dibromoethane	µg/L	<0.200	0.200	0.500	02/24/23 23:29		
Dibromomethane	µg/L	<0.230	0.230	0.500	02/24/23 23:29		
1,2-Dichlorobenzene	µg/L	<0.220	0.220	0.500	02/24/23 23:29		
1,3-Dichlorobenzene	µg/L	<0.190	0.190	0.500	02/24/23 23:29		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30154 **QC Analytical Batch(es):** V30155
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30154 Matrix: AQU
Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
1,4-Dichlorobenzene	µg/L	<0.210	0.210	0.500	02/24/23 23:29		
Dichlorodifluoromethane	µg/L	<1.20	1.20	5.00	02/24/23 23:29		
1,1-Dichloroethane	µg/L	<0.240	0.240	0.500	02/24/23 23:29		
1,2-Dichloroethane	µg/L	<0.150	0.150	0.500	02/24/23 23:29		
1,1-Dichloroethene	µg/L	<0.150	0.150	0.500	02/24/23 23:29		
cis-1,2-Dichloroethene	µg/L	<0.200	0.200	0.500	02/24/23 23:29		
trans-1,2-Dichloroethene	µg/L	<0.180	0.180	0.500	02/24/23 23:29		
1,2-Dichloropropane	µg/L	<0.190	0.190	0.500	02/24/23 23:29		
1,3-Dichloropropane	µg/L	<0.130	0.130	0.500	02/24/23 23:29		
2,2-Dichloropropane	µg/L	<0.210	0.210	2.00	02/24/23 23:29		
1,1-Dichloropropene	µg/L	<0.200	0.200	0.500	02/24/23 23:29		
cis-1,3-Dichloropropene	µg/L	<0.210	0.210	0.500	02/24/23 23:29		
trans-1,3-Dichloropropene	µg/L	<0.150	0.150	0.500	02/24/23 23:29		
Ethylbenzene	µg/L	<0.170	0.170	0.500	02/24/23 23:29		
Ethyl Tertiary Butyl Ether (ETBE)	µg/L	<1.80	1.80	10.0	02/24/23 23:29		
Hexachlorobutadiene	µg/L	<0.350	0.350	2.00	02/24/23 23:29		
n-Hexane	µg/L	<1.30	1.30	10.0	02/24/23 23:29		
2-Hexanone	µg/L	<0.380	0.380	5.00	02/24/23 23:29		
Isopropylbenzene	µg/L	<0.180	0.180	5.00	02/24/23 23:29		
4-Isopropyl toluene	µg/L	<0.089	0.089	0.500	02/24/23 23:29		
Methyl Ethyl Ketone (MEK)	µg/L	<0.710	0.710	5.00	02/24/23 23:29		
Methyl tert-butyl ether (MTBE)	µg/L	<0.140	0.140	0.500	02/24/23 23:29		
4-Methyl-2-Pentanone	µg/L	<1.00	1.00	5.00	02/24/23 23:29		
Methylene Chloride	µg/L	<0.330	0.330	1.00	02/24/23 23:29		
Naphthalene	µg/L	<0.470	0.470	1.00	02/24/23 23:29		
n-Propylbenzene	µg/L	<0.190	0.190	0.500	02/24/23 23:29		
Styrene	µg/L	<0.220	0.220	0.500	02/24/23 23:29		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30154 **QC Analytical Batch(es):** V30155
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30154 Matrix: AQU
 Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
1,1,1,2-Tetrachloroethane	µg/L	<0.160	0.160	0.500	02/24/23 23:29		
1,1,2,2-Tetrachloroethane	µg/L	<0.160	0.160	0.500	02/24/23 23:29		
Tetrachloroethene	µg/L	<0.220	0.220	0.500	02/24/23 23:29		
Toluene	µg/L	<0.220	0.220	0.500	02/24/23 23:29		
1,2,3-Trichlorobenzene	µg/L	<0.380	0.380	2.00	02/24/23 23:29		
1,2,4-Trichlorobenzene	µg/L	<0.310	0.310	1.00	02/24/23 23:29		
1,1,1-Trichloroethane	µg/L	<0.160	0.160	0.500	02/24/23 23:29		
1,1,2-Trichloroethane	µg/L	<0.096	0.096	0.500	02/24/23 23:29		
Trichloroethene	µg/L	<0.180	0.180	0.500	02/24/23 23:29		
Trichlorofluoromethane	µg/L	<0.180	0.180	0.500	02/24/23 23:29		
1,2,3-Trichloropropane	µg/L	<0.270	0.270	1.00	02/24/23 23:29		
1,3,5-Trimethylbenzene	µg/L	<0.180	0.180	0.500	02/24/23 23:29		
Vinyl Acetate	µg/L	<1.00	1.00	2.00	02/24/23 23:29		
Vinyl Chloride	µg/L	<0.170	0.170	0.500	02/24/23 23:29		
o-Xylene	µg/L	<0.210	0.210	0.500	02/24/23 23:29		
m,p-Xylene	µg/L	<0.420	0.420	1.00	02/24/23 23:29		
4-Bromofluorobenzene (S)					02/24/23 23:29	97.0	80-124
Dibromofluoromethane (S)					02/24/23 23:29	89.2	75-129
1,2-Dichloroethane - d4 (S)					02/24/23 23:29	80.8	63-136
Toluene-d8 (S)					02/24/23 23:29	97.2	77-123

Laboratory Control Sample & LCSD LCS-V30154 LCSD-V30154

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Acetone	µg/L	40.0	21.2	22.0	53.0	55.0	40-166	3.7	20.0
Acrolein	µg/L	40.0	32.3	34.4	80.7	86.0	70-130	6.2	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30154 **QC Analytical Batch(es):** V30155
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30154 LCSD-V30154

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Acrylonitrile	µg/L	40.0	39.3	41.4	98.2	104	81-127	5.2	20.0
Benzene	µg/L	20.0	20.9	20.5	105	103	77-128	1.9	20.0
Bromobenzene	µg/L	20.0	19.1	18.2	95.5	91.0	78-129	4.8	20.0
Bromochloromethane	µg/L	20.0	21.7	21.3	109	107	78-135	1.8	20.0
Bromodichloromethane	µg/L	20.0	19.6	19.2	98.0	96.0	76-138	2.0	20.0
Bromoform	µg/L	20.0	17.8	18.2	89.0	91.0	71-135	2.2	20.0
Bromomethane	µg/L	20.0	24.9	25.1	125	126	41-168	0.8	20.0
n-Butylbenzene	µg/L	20.0	19.7	17.8	98.5	89.0	68-134	10.1	20.0
sec-Butyl benzene	µg/L	20.0	19.9	18.3	99.5	91.5	71-131	8.3	20.0
tert-Butyl benzene	µg/L	20.0	20.5	18.9	103	94.5	70-132	8.1	20.0
Carbon Disulfide	µg/L	20.0	19.3	19.3	96.5	96.5	59-135	0.0	20.0
Carbon Tetrachloride	µg/L	20.0	22.2	21.5	111	108	72-142	3.2	20.0
Chlorobenzene	µg/L	20.0	20.8	19.7	104	98.5	78-119	5.4	20.0
Chlorodibromomethane	µg/L	20.0	20.8	20.3	104	102	75-134	2.4	20.0
Chloroethane	µg/L	20.0	19.1	18.6	95.5	93.0	57-142	2.6	20.0
Chloroform	µg/L	20.0	20.1	19.6	101	98.0	77-130	2.5	20.0
Chloromethane	µg/L	20.0	19.8	19.1	99.0	95.5	47-145	3.5	20.0
2-Chlorotoluene	µg/L	20.0	20.3	18.6	102	93.0	74-126	8.7	20.0
4-Chlorotoluene	µg/L	20.0	19.8	18.0	99.0	90.0	78-129	9.5	20.0
Di-Isopropyl Ether (DIPE)	µg/L	20.0	17.4	17.4	87.0	87.0	60-154	0.0	20.0
1,2-Dibromo-3-Chloropropane	µg/L	20.0	20.5	21.0	103	105	63-134	2.4	20.0
1,2-Dibromoethane	µg/L	20.0	20.8	21.0	104	105	77-135	0.9	20.0
Dibromomethane	µg/L	20.0	19.8	20.3	99.0	102	76-138	2.4	20.0
1,2-Dichlorobenzene	µg/L	20.0	20.3	19.7	102	98.5	78-128	3.0	20.0
1,3-Dichlorobenzene	µg/L	20.0	20.4	19.1	102	95.5	77-125	6.5	20.0
1,4-Dichlorobenzene	µg/L	20.0	20.5	19.2	103	96.0	75-126	6.5	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30154 **QC Analytical Batch(es):** V30155
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30154 LCSD-V30154

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Dichlorodifluoromethane	µg/L	20.0	23.6	25.1	118	126	28-163	6.1	20.0
1,1-Dichloroethane	µg/L	20.0	20.3	19.6	102	98.0	70-130	3.5	20.0
1,2-Dichloroethane	µg/L	20.0	18.8	18.9	94.0	94.5	68-131	0.5	20.0
1,1-Dichloroethene	µg/L	20.0	19.0	19.2	95.0	96.0	70-154	1.0	20.0
cis-1,2-Dichloroethene	µg/L	20.0	19.7	19.3	98.5	96.5	76-141	2.0	20.0
trans-1,2-Dichloroethene	µg/L	20.0	20.3	19.5	102	97.5	76-135	4.0	20.0
1,2-Dichloropropane	µg/L	20.0	20.2	19.9	101	99.5	77-130	1.4	20.0
1,3-Dichloropropane	µg/L	20.0	20.4	19.8	102	99.0	76-132	2.9	20.0
2,2-Dichloropropane	µg/L	20.0	18.7	18.1	93.5	90.5	29-149	3.2	20.0
1,1-Dichloropropene	µg/L	20.0	22.8	22.2	114	111	71-136	2.6	20.0
cis-1,3-Dichloropropene	µg/L	20.0	20.4	20.2	102	101	65-140	0.9	20.0
trans-1,3-Dichloropropene	µg/L	20.0	20.4	20.5	102	103	67-140	0.4	20.0
Ethylbenzene	µg/L	20.0	19.9	18.9	99.5	94.5	80-127	5.1	20.0
Ethyl Tertiary Butyl Ether (ETBE)	µg/L	40.0	41.9	42.9	105	107	70-130	2.3	20.0
Hexachlorobutadiene	µg/L	20.0	24.0	21.4	120	107	61-134	11.4	20.0
n-Hexane	µg/L	20.0	17.8	17.9	89.0	89.5	70-130	0.5	20.0
2-Hexanone	µg/L	20.0	12.8	14.2	64.0	71.0	64-137	10.3	20.0
Isopropylbenzene	µg/L	20.0	20.5	18.9	103	94.5	70-130	8.1	20.0
4-Isopropyl toluene	µg/L	20.0	21.0	19.4	105	97.0	69-132	7.9	20.0
Methyl Ethyl Ketone (MEK)	µg/L	20.0	12.9	13.4	64.5*	67.0*	71-134	3.8	20.0
Methyl tert-butyl ether (MTBE)	µg/L	20.0	20.1	20.9	101	105	68-135	3.9	20.0
4-Methyl-2-Pentanone	µg/L	20.0	16.2	17.4	81.0	87.0	69-134	7.1	20.0
Methylene Chloride	µg/L	20.0	17.8	17.5	89.0	87.5	73-131	1.6	20.0
Naphthalene	µg/L	20.0	21.2	20.6	106	103	64-136	2.8	20.0
n-Propylbenzene	µg/L	20.0	19.9	18.3	99.5	91.5	72-132	8.3	20.0
Styrene	µg/L	20.0	19.3	19.5	96.5	97.5	78-129	1.0	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30154 **QC Analytical Batch(es):** V30155
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30154 LCSD-V30154

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
1,1,1,2-Tetrachloroethane	µg/L	20.0	20.3	20.2	102	101	79-134	0.4	20.0
1,1,2,2-Tetrachloroethane	µg/L	20.0	17.7	17.7	88.5	88.5	62-127	0.0	20.0
Tetrachloroethene	µg/L	20.0	23.3	21.4	117	107	80-129	8.5	20.0
Toluene	µg/L	20.0	21.7	21.0	109	105	76-131	3.2	20.0
1,2,3-Trichlorobenzene	µg/L	20.0	24.9	22.7	125	114	58-144	9.2	20.0
1,2,4-Trichlorobenzene	µg/L	20.0	22.6	21.5	113	108	66-139	4.9	20.0
1,1,1-Trichloroethane	µg/L	20.0	20.9	20.5	105	103	75-135	1.9	20.0
1,1,2-Trichloroethane	µg/L	20.0	21.4	21.4	107	107	70-140	0.0	20.0
Trichloroethene	µg/L	20.0	23.0	22.3	115	112	77-133	3.0	20.0
Trichlorofluoromethane	µg/L	20.0	22.6	22.0	113	110	62-148	2.6	20.0
1,2,3-Trichloropropane	µg/L	20.0	19.5	19.5	97.5	97.5	71-127	0.0	20.0
1,3,5-Trimethylbenzene	µg/L	20.0	20.6	18.6	103	93.0	75-131	10.2	20.0
Vinyl Acetate	µg/L	20.0	18.0	18.8	90.0	94.0	34-167	4.3	20.0
Vinyl Chloride	µg/L	20.0	20.3	20.0	102	100	57-141	1.4	20.0
o-Xylene	µg/L	20.0	19.1	18.7	95.5	93.5	78-128	2.1	20.0
m,p-Xylene	µg/L	40.0	40.7	39.6	102	99.0	77-133	2.7	20.0
4-Bromofluorobenzene (S)					98.4	94.8	80-124		
Dibromofluoromethane (S)					89.0	90.8	75-129		
1,2-Dichloroethane - d4 (S)					83.6	88.0	63-136		
Toluene-d8 (S)					98.4	96.4	77-123		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30290 **QC Analytical Batch(es):** V30291
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30290 Matrix: AQU
Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Ethanol	µg/L	<42.0	42.0	200	02/28/23 18:29		
4-Bromofluorobenzene (S)					02/28/23 18:29	102	80-124
Dibromofluoromethane (S)					02/28/23 18:29	98.8	75-129
1,2-Dichloroethane - d4 (S)					02/28/23 18:29	95.4	63-136
Toluene-d8 (S)					02/28/23 18:29	99.8	77-123

Laboratory Control Sample & LCSD LCS-V30290 LCSD-V30290

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Ethanol	µg/L	500	553	584	111	117	70-130	5.4	20.0
4-Bromofluorobenzene (S)					99.8	99.2	80-124		
Dibromofluoromethane (S)					101	98.8	75-129		
1,2-Dichloroethane - d4 (S)					95.8	94.8	63-136		
Toluene-d8 (S)					99.6	99.2	77-123		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30094 **QC Analytical Batch(es):** V30175
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30094 Matrix: AQU
 Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Acenaphthene	µg/L	<0.302	0.302	2.00	02/24/23 15:12		
Acenaphthylene	µg/L	<0.297	0.297	2.00	02/24/23 15:12		
Aniline	µg/L	<2.05	2.05	5.00	02/24/23 15:12		
Anthracene	µg/L	<0.836	0.836	2.00	02/24/23 15:12		
Benzo(a)anthracene	µg/L	<0.637	0.637	2.00	02/24/23 15:12		
Benzo(a)pyrene	µg/L	<1.02	1.02	2.00	02/24/23 15:12		
Benzo(b)fluoranthene	µg/L	<2.49	2.49	5.00	02/24/23 15:12		
Benzo(g,h,i)perylene	µg/L	<1.01	1.01	5.00	02/24/23 15:12		
Benzo(k)fluoranthene	µg/L	<1.99	1.99	5.00	02/24/23 15:12		
Benzoic Acid	µg/L	<1.10	1.10	10.0	02/24/23 15:12		
Benzyl alcohol	µg/L	<0.684	0.684	5.00	02/24/23 15:12		
Bis(2-Chloroethoxy)methane	µg/L	<0.468	0.468	5.00	02/24/23 15:12		
Bis(2-Chloroethyl)ether	µg/L	<1.04	1.04	5.00	02/24/23 15:12		
Bis(2-Chloroisopropyl)ether	µg/L	<1.08	1.08	5.00	02/24/23 15:12		
Bis(2-ethylhexyl)phthalate	µg/L	<3.46	3.46	10.0	02/24/23 15:12		
4-Bromophenyl phenyl ether	µg/L	<1.11	1.11	5.00	02/24/23 15:12		
Butyl benzyl phthalate	µg/L	<1.83	1.83	5.00	02/24/23 15:12		
4-Chloro-3-methylphenol	µg/L	<1.18	1.18	5.00	02/24/23 15:12		
4-Chloroaniline	µg/L	<1.33	1.33	5.00	02/24/23 15:12		
2-Chloronaphthalene	µg/L	<1.83	1.83	20.0	02/24/23 15:12		
2-Chlorophenol	µg/L	<0.938	0.938	10.0	02/24/23 15:12		
4-Chlorophenyl phenyl ether	µg/L	<1.71	1.71	5.00	02/24/23 15:12		
Chrysene	µg/L	<0.405	0.405	2.00	02/24/23 15:12		
Dibenz(a,h)anthracene	µg/L	<0.434	0.434	2.00	02/24/23 15:12		
Dibenzofuran	µg/L	<0.856	0.856	5.00	02/24/23 15:12		
1,2-Dichlorobenzene	µg/L	<2.00	2.00	5.00	02/24/23 15:12		
1,3-Dichlorobenzene	µg/L	<2.00	2.00	5.00	02/24/23 15:12		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30094 **QC Analytical Batch(es):** V30175
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30094 Matrix: AQU
 Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
1,4-Dichlorobenzene	µg/L	<2.05	2.05	5.00	02/24/23 15:12		
3,3'-Dichlorobenzidine	µg/L	<1.89	1.89	5.00	02/24/23 15:12		
2,4-Dichlorophenol	µg/L	<1.46	1.46	10.0	02/24/23 15:12		
Diethyl phthalate	µg/L	<0.745	0.745	5.00	02/24/23 15:12		
Dimethyl phthalate	µg/L	<0.939	0.939	5.00	02/24/23 15:12		
2,4-Dimethylphenol	µg/L	<1.57	1.57	20.0	02/24/23 15:12		
Di-n-butyl phthalate	µg/L	<2.06	2.06	5.00	02/24/23 15:12		
4,6-Dinitro-2-methylphenol	µg/L	<2.07	2.07	10.0	02/24/23 15:12		
2,4-Dinitrophenol	µg/L	<1.92	1.92	10.0	02/24/23 15:12		
2,4-Dinitrotoluene	µg/L	<1.11	1.11	5.00	02/24/23 15:12		
2,6-Dinitrotoluene	µg/L	<0.809	0.809	5.00	02/24/23 15:12		
Di-n-Octyl Phthalate	µg/L	<1.65	1.65	5.00	02/24/23 15:12		
Fluoranthene	µg/L	<0.250	0.250	2.00	02/24/23 15:12		
Fluorene	µg/L	<0.807	0.807	2.00	02/24/23 15:12		
Hexachlorobenzene	µg/L	<0.979	0.979	5.00	02/24/23 15:12		
Hexachlorobutadiene	µg/L	<2.73	2.73	5.00	02/24/23 15:12		
Hexachlorocyclopentadiene	µg/L	<2.05	2.05	5.00	02/24/23 15:12		
Hexachloroethane	µg/L	<1.76	1.76	5.00	02/24/23 15:12		
Indeno(1,2,3-cd)pyrene	µg/L	<0.477	0.477	2.00	02/24/23 15:12		
Isophorone	µg/L	<0.444	0.444	5.00	02/24/23 15:12		
1-Methylnaphthalene	µg/L	<1.14	1.14	2.00	02/24/23 15:12		
2-Methylnaphthalene	µg/L	<0.666	0.666	2.00	02/24/23 15:12		
2-Methylphenol	µg/L	<1.15	1.15	5.00	02/24/23 15:12		
3&4 Methylphenol	µg/L	<0.880	0.880	10.0	02/24/23 15:12		
Naphthalene	µg/L	<0.728	0.728	2.00	02/24/23 15:12		
2-Nitroaniline	µg/L	<1.39	1.39	5.00	02/24/23 15:12		
3-Nitroaniline	µg/L	<1.39	1.39	5.00	02/24/23 15:12		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30094 **QC Analytical Batch(es):** V30175
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30094 Matrix: AQU
 Associated Lab Samples: 89450, 89451, 89452, 89453, 89454, 89455

Parameter	Units	Blank Result	MDL	SQL	Analyzed	% Recovery	% Rec Limits
4-Nitroaniline	µg/L	<1.53	1.53	5.00	02/24/23 15:12		
Nitrobenzene	µg/L	<0.905	0.905	5.00	02/24/23 15:12		
2-Nitrophenol	µg/L	<0.493	0.493	5.00	02/24/23 15:12		
4-Nitrophenol	µg/L	<1.23	1.23	10.0	02/24/23 15:12		
N-Nitrosodimethylamine	µg/L	<0.450	0.450	5.00	02/24/23 15:12		
N-Nitrosodiphenylamine	µg/L	<1.10	1.10	5.00	02/24/23 15:12		
N-Nitroso-di-n-propylamine	µg/L	<0.641	0.641	5.00	02/24/23 15:12		
Pentachlorophenol	µg/L	<1.43	1.43	5.00	02/24/23 15:12		
Phenanthrene	µg/L	<0.428	0.428	2.00	02/24/23 15:12		
Phenol	µg/L	<0.651	0.651	5.00	02/24/23 15:12		
Pyrene	µg/L	<0.434	0.434	2.00	02/24/23 15:12		
1,2,4-Trichlorobenzene	µg/L	<2.21	2.21	5.00	02/24/23 15:12		
2,4,5-Trichlorophenol	µg/L	<1.31	1.31	5.00	02/24/23 15:12		
2,4,6-Trichlorophenol	µg/L	<1.32	1.32	5.00	02/24/23 15:12		
2-Fluorobiphenyl (S)					02/24/23 15:12	82.2	44-119
2-Fluorophenol (S)					02/24/23 15:12	46.7	19-119
Nitrobenzene-d5 (S)					02/24/23 15:12	73.0	44-120
4-Terphenyl-d14 (S)					02/24/23 15:12	110	50-134
2,4,6-Tribromophenol (S)					02/24/23 15:12	103	43-140
Phenol-d5 (S)					02/24/23 15:12	30.4	11-100

Laboratory Control Sample & LCSD LCS-V30094 LCSD-V30094

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Acenaphthene	µg/L	50.0	40.9	41.4	81.8	82.8	38-117	1.2	20.0
Acenaphthylene	µg/L	50.0	42.1	42.2	84.2	84.4	41-130	0.2	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30094 **QC Analytical Batch(es):** V30175
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30094 LCSD-V30094

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Aniline	µg/L	50.0	93.9	97.9	188	196	12-197	4.1	20.0
Anthracene	µg/L	50.0	45.0	44.3	90.0	88.6	57-123	1.5	20.0
Benzo(a)anthracene	µg/L	50.0	45.0	45.1	90.0	90.2	58-125	0.2	20.0
Benzo(a)pyrene	µg/L	50.0	53.3	54.1	107	108	54-128	1.4	20.0
Benzo(b)fluoranthene	µg/L	50.0	47.9	46.8	95.8	93.6	53-131	2.3	20.0
Benzo(g,h,i)perylene	µg/L	50.0	46.2	48.4	92.4	96.8	50-134	4.6	20.0
Benzo(k)fluoranthene	µg/L	50.0	44.3	46.7	88.6	93.4	53-131	5.2	20.0
Benzoic Acid	µg/L	50.0	15.1	14.0	30.2	28.0	10-125	7.5	20.0
Benzyl alcohol	µg/L	50.0	33.9	33.9	67.8	67.8	31-112	0.0	20.0
Bis(2-Chloroethoxy)methane	µg/L	50.0	38.2	40.0	76.4	80.0	48-120	4.6	20.0
Bis(2-Chloroethyl)ether	µg/L	50.0	31.3	32.6	62.6	65.2	43-118	4.0	20.0
Bis(2-Chloroisopropyl)ether	µg/L	50.0	32.4	33.3	64.8	66.6	37-130	2.7	20.0
Bis(2-ethylhexyl)phthalate	µg/L	50.0	50.8	50.5	102	101	55-135	0.5	20.0
4-Bromophenyl phenyl ether	µg/L	50.0	45.5	46.4	91.0	92.8	55-124	1.9	20.0
Butyl benzyl phthalate	µg/L	50.0	47.2	48.0	94.4	96.0	53-134	1.6	20.0
4-Chloro-3-methylphenol	µg/L	50.0	40.4	39.1	80.8	78.2	52-119	3.2	20.0
4-Chloroaniline	µg/L	50.0	42.4	43.3	84.8	86.6	33-117	2.1	20.0
2-Chloronaphthalene	µg/L	50.0	41.6	41.1	83.2	82.2	40-116	1.2	20.0
2-Chlorophenol	µg/L	50.0	31.9	32.4	63.8	64.8	38-117	1.5	20.0
4-Chlorophenyl phenyl ether	µg/L	50.0	42.5	42.9	85.0	85.8	53-121	0.9	20.0
Chrysene	µg/L	50.0	47.4	47.9	94.8	95.8	59-123	1.0	20.0
Dibenz(a,h)anthracene	µg/L	50.0	45.9	46.7	91.8	93.4	51-134	1.7	20.0
Dibenzofuran	µg/L	50.0	41.7	42.0	83.4	84.0	53-118	0.7	20.0
1,2-Dichlorobenzene	µg/L	50.0	28.3	29.2	56.6	58.4	32-111	3.1	20.0
1,3-Dichlorobenzene	µg/L	50.0	27.8	29.2	55.6	58.4	28-110	4.9	20.0
1,4-Dichlorobenzene	µg/L	50.0	27.2	28.3	54.4	56.6	29-112	3.9	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30094 **QC Analytical Batch(es):** V30175
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30094 LCSD-V30094

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
3,3'-Dichlorobenzidine	µg/L	50.0	32.6	36.1	65.2	72.2	27-129	10.1	20.0
2,4-Dichlorophenol	µg/L	50.0	38.3	38.5	76.6	77.0	47-121	0.5	20.0
Diethyl phthalate	µg/L	50.0	45.1	44.8	90.2	89.6	56-125	0.6	20.0
Dimethyl phthalate	µg/L	50.0	43.3	43.9	86.6	87.8	45-127	1.3	20.0
2,4-Dimethylphenol	µg/L	50.0	38.0	41.2	76.0	82.4	31-124	8.0	20.0
Di-n-butyl phthalate	µg/L	50.0	50.7	50.5	101	101	59-127	0.3	20.0
4,6-Dinitro-2-methylphenol	µg/L	50.0	35.9	37.7	71.8	75.4	44-137	4.8	20.0
2,4-Dinitrophenol	µg/L	50.0	37.7	39.7	75.4	79.4	23-143	5.1	20.0
2,4-Dinitrotoluene	µg/L	50.0	47.1	48.8	94.2	97.6	57-128	3.5	20.0
2,6-Dinitrotoluene	µg/L	50.0	48.0	49.9	96.0	99.8	57-124	3.8	20.0
Di-n-Octyl Phthalate	µg/L	50.0	48.1	48.4	96.2	96.8	51-140	0.6	20.0
Fluoranthene	µg/L	50.0	44.8	45.0	89.6	90.0	57-128	0.4	20.0
Fluorene	µg/L	50.0	43.4	43.0	86.8	86.0	52-124	0.9	20.0
Hexachlorobenzene	µg/L	50.0	46.3	46.2	92.6	92.4	53-125	0.2	20.0
Hexachlorobutadiene	µg/L	50.0	31.8	32.7	63.6	65.4	22-124	2.7	20.0
Hexachlorocyclopentadiene	µg/L	50.0	30.5	29.9	61.0	59.8	32-117	1.9	20.0
Hexachloroethane	µg/L	50.0	25.9	26.3	51.8	52.6	21-115	1.5	20.0
Indeno(1,2,3-cd)pyrene	µg/L	50.0	45.9	46.8	91.8	93.6	52-134	1.9	20.0
Isophorone	µg/L	50.0	34.6	36.7	69.2	73.4	42-124	5.8	20.0
1-Methylnaphthalene	µg/L	50.0	36.0	36.7	72.0	73.4	41-119	1.9	20.0
2-Methylnaphthalene	µg/L	50.0	35.7	35.5	71.4	71.0	40-121	0.5	20.0
2-Methylphenol	µg/L	50.0	31.0	31.2	62.0	62.4	30-117	0.6	20.0
3&4 Methylphenol	µg/L	50.0	24.8	25.1	49.6	50.2	29-110	1.2	20.0
Naphthalene	µg/L	50.0	33.8	34.5	67.6	69.0	40-121	2.0	20.0
2-Nitroaniline	µg/L	50.0	43.5	43.2	87.0	86.4	55-127	0.6	20.0
3-Nitroaniline	µg/L	50.0	43.5	43.2	87.0	86.4	41-128	0.6	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-054-0100

QC Prep: V30094 **QC Analytical Batch(es):** V30175
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30094 LCSD-V30094

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
4-Nitroaniline	µg/L	50.0	40.5	39.9	81.0	79.8	45-135	1.4	20.0
Nitrobenzene	µg/L	50.0	34.4	35.4	68.8	70.8	45-121	2.8	20.0
2-Nitrophenol	µg/L	50.0	36.4	38.8	72.8	77.6	47-123	6.3	20.0
4-Nitrophenol	µg/L	50.0	19.1	19.2	38.2	38.4	10-105	0.5	20.0
N-Nitrosodimethylamine	µg/L	50.0	20.6	21.2	41.2	42.4	10-119	2.8	20.0
N-Nitrosodiphenylamine	µg/L	50.0	54.6	54.4	109	109	51-123	0.3	20.0
N-Nitroso-di-n-propylamine	µg/L	50.0	32.8	35.2	65.6	70.4	49-119	7.0	20.0
Pentachlorophenol	µg/L	50.0	46.9	47.1	93.8	94.2	35-138	0.4	20.0
Phenanthrene	µg/L	50.0	44.7	45.1	89.4	90.2	59-120	0.8	20.0
Phenol	µg/L	50.0	16.2	16.3	32.4	32.6	12-58	0.6	20.0
Pyrene	µg/L	50.0	47.2	47.7	94.4	95.4	57-126	1.0	20.0
1,2,4-Trichlorobenzene	µg/L	50.0	32.2	33.0	64.4	66.0	29-126	2.4	20.0
2,4,5-Trichlorophenol	µg/L	50.0	42.3	41.0	84.6	82.0	53-123	3.1	20.0
2,4,6-Trichlorophenol	µg/L	50.0	42.4	41.7	84.8	83.4	50-125	1.6	20.0
2-Fluorobiphenyl (S)					80.4	81.4	44-119		
2-Fluorophenol (S)					42.0	42.5	19-119		
Nitrobenzene-d5 (S)					67.4	70.2	44-120		
4-Terphenyl-d14 (S)					99.4	98.0	50-134		
2,4,6-Tribromophenol (S)					97.6	96.1	43-140		
Phenol-d5 (S)					28.9	28.2	11-100		

Shipment Receipt Form

Customer Number: **00019**
Customer Name: **F&R, Inc. - Charlotte**
Report Number: **23-054-0100**

Shipping Method

Fed Ex US Postal Lab Other :
 UPS Client Courier Thermometer ID:

Shipping container/cooler uncompromised?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Number of coolers/boxes received	<input type="text" value="1"/>		
Custody seals intact on shipping container/cooler?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not Present
Custody seals intact on sample bottles?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not Present
Chain of Custody (COC) present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
COC agrees with sample label(s)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
COC properly completed	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Samples in proper containers?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Sample containers intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Sufficient sample volume for indicated test(s)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
All samples received within holding time?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Cooler temperature in compliance?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Water - Sample containers properly preserved	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Water - VOA vials free of headspace	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Trip Blanks received with VOAs	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> N/A
Soil VOA method 5035 – compliance criteria met	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="checkbox"/> High concentration container (48 hr)		<input type="checkbox"/> Low concentration EnCore samplers (48 hr)	
<input type="checkbox"/> High concentration pre-weighed (methanol -14 d)		<input type="checkbox"/> Low conc pre-weighed vials (Sod Bis -14 d)	
Special precautions or instructions included?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	

Comments:

Signature:

Date & Time:

Waypoint



ANALYTICAL
449 Springbrook Road • Charlotte, NC 28217
Phone 704/529-6364 • Fax: 704/525-0409

Client Company Name: Fooding Robertson

Report To/Contact Name: Brian Piv

Reporting Address: 310 Hubert St.

Kelish, NC 27603

Phone: _____ Fax (Yes)(No): _____

Email Address: 804nd@facebook.com

EDD Type: PDF Excel Other

Site Location Name: Greenville PW

Site Location Physical Address: 1500 Beatty St.

Greenville, NC 27631

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2 QUOTE # TO ENSURE PROPER BILLING:

Project Name: _____ UST Project: (Yes) (No)

Short Hold Analysis (Yes) (No) *Please ATTACH any project specific reporting (QC LEVEL I III IV) provisions and/or QC Requirements

Invoice To: _____

Address: _____

Purchase Order No./Billing Reference _____

Requested Due Date 1 Day 2 Days 3 Days 4 Days 5 Days
"Working Days" 6-9 Days Standard 10 days Rush Work Must Be Pre Approved

Samples received after 15:00 will be processed next business day. Turnaround time is based on business days, excluding weekends and holidays. (SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY WAYPOINT ANALYTICAL, LLC TO CLIENT)

LAB USE ONLY

Samples INTACT upon arrival?	YES	NO	N/A
Received IN ICE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER PRESERVATIVES indicated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Received WITHIN HOLDING TIMES?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CUSTODY SEALS INTACT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VOLATILES rec'd W/OUT HEADSPACE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROPER CONTAINERS used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEMP: Therm ID: <u>8475</u> Observed <u>18</u> °C / Corr. <u>1.0</u> °C			

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NC _____ SC _____

Water Chlorinated: YES _____ NO _____

Samples Iced Upon Collection: YES _____ NO _____

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER, OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	ANALYSIS REQUESTED			REMARKS	ID NO.	
				*TYPE SEE BELOW	NO.	SIZE							
S-1	2/2/23	1630	W					4260	4270	020			
S-2		1545								620	110pt	Salinity	
MH-1													
MH-2		0658											
MH-3		1010											
TMW-1		1232											
TMW-2		1315											
TMW-3		1445											

PRESS DOWN FIRMLY - 2 COPIES

Sampler's Signature: Will Dwyer

Sampled By (Print Name): Will Dwyer

Affiliation _____

Upon relinquishing, this Chain of Custody is your authorization for Waypoint Analytical to proceed with the analyses as requested above. Any changes must be submitted in writing to the Waypoint Analytical Project Manager. There will be charges for any changes after analyses have been initialized.

Relinquished By (Signature): Will Dwyer Date: 2-22-23 Military/Hours: 10:15

Relinquished By (Signature): Will Dwyer Date: 2-22-23 Military/Hours: 18:30

Relinquished By (Signature): Will Dwyer Date: 2/25/23 Military/Hours: 1100

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

- Fed Ex UPS Hand-delivered Waypoint Analytical Field Service Other
 NPDES: NC SC NC SC NC SC NC SC NC SC
 GROUNDWATER: NC SC NC SC NC SC
 SOLID WASTE: NC SC NC SC NC SC
 RCRA: NC SC NC SC NC SC
 BRWNFLD: NC SC NC SC
 LANDFILL: NC SC NC SC
 OTHER: NC SC NC SC

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

33-054-0100
00019
02-23-2023
12:02:44
F&R, Inc. - Charlotte
Greenville PW

ORIGINAL



449 Springbrook Road • Charlotte, NC 28217
Phone 704/529-6364 • Fax: 704/525-0409

CHAIN OF CUSTODY RECORD

PAGE 2 OF 2 QUOTE # TO ENSURE PROPER BILLING:

Client Company Name: _____
Report To/Contact Name: _____
Reporting Address: _____

Project Name: _____
Short Hold Analysis (Yes) (No) (Yes) (No) **UST Project: (Yes) (No)**
*Please ATTACH any project specific reporting (QC LEVEL I III IV)
provisions and/or QC Requirements
Invoice To: _____
Address: _____

Purchase Order No./Billing Reference _____

Requested Due Date 1 Day 2 Days 3 Days 4 Days 5 Days
"Working Days" 6-9 Days Standard 10 days Rush Work Must Be Pre Approved
Samples received after 15:00 will be processed next business day.
Turnaround time is based on business days, excluding weekends and holidays.
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES
RENDERED BY WAYPOINT ANALYTICAL, LLC TO CLIENT)

LAB USE ONLY	
Samples INTACT upon arrival?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>
Received IN ICE?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>
PROPER PRESERVATIVES indicated?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>
Received WITHIN HOLDING TIMES?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>
CUSTOMY SEALS INTACT?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>
VOLATILES rec'd W/OUT HEADSPACE?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>
PROPER CONTAINERS used?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A <input type="checkbox"/>
TEMP: Therm ID: <u>9902</u> Observed <u>1.8</u> °C / Corr. <u>1.8</u> °C	

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: **NC** **SC** Other N/A

Water Chlorinated: **YES** **NO**

Samples Iced Upon Collection: **YES** **NO**

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER, OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	ANALYSIS REQUESTED			REMARKS	ID NO.
				*TYPE SEE BELOW	NO.	SIZE		Metals	NOV	CON		
S-1	2/21/13	1630	W					X	X	X		
S-2		1545						X	X	X		
MH-1		0958						X	X	X		
MH-2		1010						X	X	X		
MH-3		1232						X	X	X		
TMW-1		1315						X	X	X		
TMW-2		1445						X	X	X		
TMW-3								X	X	X		

PRESS DOWN FIRMLY - 2 COPIES

Sampler's Signature: [Signature] Sampled By (Print Name): Will Dunlop Affiliation: _____

Upon relinquishing, this Chain of Custody is your authorization for Waypoint Analytical to proceed with the analyses as requested above. Any changes must be submitted in writing to the Waypoint Analytical Project Manager. There will be charges for any changes after analyses have been initialized.

Relinquished By (Signature): [Signature] Date: 2-22-13 Military/Hours: 10:15

Relinquished By (Signature): [Signature] Date: 2-22-13 Military/Hours: 16:30

Relinquished By (Signature): [Signature] Date: 2/23/13 Military/Hours: 1100

Method of Shipment: Fed Ex UPS Hand-delivered Waypoint Analytical Field Service Other

NPDES: NC SC GROUNDWATER: NC SC DRINKING WATER: NC SC SOLID WASTE: NC SC RCRA: NC SC BRWNFLD NC SC LANDFILL NC SC OTHER: NC SC

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

23-054-0100
00019
02-23-2023
12:02:44

F&R, Inc. - Charlotte
Greenville PW

ORIGINAL

Certification Summary

Laboratory ID: WP CNC: Waypoint Analytical Carolina, Inc. (C), Charlotte, NC

State	Program	Lab ID	Expiration Date
North Carolina	State Program	37735	07/31/2023
North Carolina	State Program	402	12/31/2023
South Carolina	State Program	99012	07/31/2023
South Carolina	State Program	99012	12/31/2022

Laboratory ID: WP MTN: Waypoint Analytical, LLC., Memphis, TN

State	Program	Lab ID	Expiration Date
Alabama	State Program	40750	02/29/2024
Arkansas	State Program	88-0650	02/07/2024
California	State Program	2904	06/30/2023
Florida	State Program - NELAP	E871157	06/30/2023
Georgia	State Program	C044	11/14/2025
Georgia	State Program	04015	06/30/2023
Illinois	State Program - NELAP	200078	10/10/2023
Kentucky	State Program	80215	06/30/2023
Kentucky	State Program	KY90047	12/31/2023
Louisiana	State Program - NELAP	LA037	12/31/2023
Louisiana	State Program - NELAP	04015	06/30/2023
Mississippi	State Program	MS	02/11/2023
North Carolina	State Program	47701	07/31/2023
North Carolina	State Program	415	12/31/2023
Pennsylvania	State Program - NELAP	68-03195	05/31/2023
South Carolina	State Program	84002	06/30/2023
Tennessee	State Program	02027	11/14/2025
Texas	State Program - NELAP	T104704180	09/30/2023
Virginia	State Program	00106	06/30/2023
Virginia	State Program - NELAP	460181	09/14/2023

Sample Summary Table

Report Number: 23-055-0102

Client Project Description: Greenville PW

Lab No	Client Sample ID	Matrix	Date Collected	Date Received	Method	Lab ID
89717	MH-1	Aqueous	02/23/2023 08:10	02/24/2023 13:30		
89717	MH-1	Aqueous	02/23/2023 08:10	02/24/2023 13:30	2520B-2011	Env. 1
89717	MH-1	Aqueous	02/23/2023 08:10	02/24/2023 13:30	365.4	WP MTN
89718	MH-3a	Aqueous	02/23/2023 09:00	02/24/2023 13:30		
89718	MH-3a	Aqueous	02/23/2023 09:00	02/24/2023 13:30	2520B-2011	Env. 1
89718	MH-3a	Aqueous	02/23/2023 09:00	02/24/2023 13:30	365.4	WP MTN

Env. 1: Environment 1, Inc., Greenville, NC

WP MTN - Memphis, TN: Waypoint Analytical - TN, Memphis, TN

Summary of Detected Analytes

Project: Greenville PW

Report Number: 23-055-0102

Client Sample ID	Lab Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
MH-1	V 89717					
2320B-2011	Alkalinity (as CaCO3)	44	mg/L	0.8	03/03/2023 17:00	
300.0	Chloride	23.8	mg/L	0.370	03/02/2023 19:49	
353.2	Nitrate+Nitrite-N	1.09	mg/L	0.044	03/01/2023 10:21	
4500H+B-2011	pH	6.5	s.u.		02/27/2023 13:36	H
4500-NH3G-2011	Ammonia Nitrogen	0.14	mg/L	0.04	03/13/2023 12:19	
8260D	Acetone	2.54	µg/L	1.80	03/01/2023 18:17	J
8260D	Chloroform	2.21	µg/L	0.220	03/01/2023 18:17	
8260D	Methyl tert-butyl ether (MTBE)	0.340	µg/L	0.140	03/01/2023 18:17	J
MH-3a	V 89718					
2320B-2011	Alkalinity (as CaCO3)	41	mg/L	0.8	03/06/2023 17:15	
300.0	Chloride	24.3	mg/L	0.370	03/02/2023 20:05	
353.2	Nitrate+Nitrite-N	0.988	mg/L	0.044	03/01/2023 10:21	
4500H+B-2011	pH	6.2	s.u.		02/27/2023 13:36	H
4500-NH3G-2011	Ammonia Nitrogen	0.45	mg/L	0.04	03/13/2023 12:19	
8260D	Acetone	3.08	µg/L	1.80	03/01/2023 18:44	J
8260D	Chloroform	0.871	µg/L	0.220	03/01/2023 18:44	
8260D	Methyl tert-butyl ether (MTBE)	0.474	µg/L	0.140	03/01/2023 18:44	J

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89717**

Sample ID : **MH-1**

Matrix: **Aqueous**

Sampled: **2/23/2023 8:10**

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO3)	44	mg/L	0.8	5	1	03/03/23 17:00	SLO	2320B-2011
Ammonia Nitrogen	0.14	mg/L	0.04	0.10	1	03/13/23 12:19	CMJ	4500-NH3G-2011
Chloride	23.8	mg/L	0.370	1.00	1	03/02/23 19:49	CMJ	300.0
Nitrate+Nitrite-N	1.09	mg/L	0.044	0.100	1	03/01/23 10:21	CMJ	353.2
pH	6.5 H	s.u.			1	02/27/23 13:36	SMW	4500H+B-2011
Phosphorus	<0.212	mg/L	0.212	0.500	1	03/06/23 14:47	ANH	365.4

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
 Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : 23-055-0102

REPORT OF ANALYSIS

Lab No : 89717

Matrix: Aqueous

Sample ID : MH-1

Sampled: 2/23/2023 8:10

Analytical Method: 8015C DRO

Prep Batch(es): V30141 02/27/23 09:08

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Diesel Range Organics (C10-C28)	<134	µg/L	134	500	1	02/27/23 19:27	AMP	V30177
Surrogate: OTP Surrogate	62.3		Limits: 50-150%		1	02/27/23 19:27	AMP	8015C DRO

Analytical Method: 8015C GRO

Prep Batch(es): V30199 02/27/23 08:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Gasoline Range Organics (C6-C10)	<38.0	µg/L	38.0	200	1	02/27/23 11:59	TBL	V30200
Surrogate: a,a,a-Trifluorotoluene	108		Limits: 57-132%		1	02/27/23 11:59	TBL	8015C GRO

Analytical Method: 8260D

Prep Batch(es): V30373 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	2.54 J	µg/L	1.80	5.00	1	03/01/23 18:17	MSA	V30374
Acrolein	<2.00	µg/L	2.00	5.00	1	03/01/23 18:17	MSA	V30374
Acrylonitrile	<0.230	µg/L	0.230	5.00	1	03/01/23 18:17	MSA	V30374
Benzene	<0.180	µg/L	0.180	0.500	1	03/01/23 18:17	MSA	V30374
Bromobenzene	<0.210	µg/L	0.210	0.500	1	03/01/23 18:17	MSA	V30374
Bromochloromethane	<0.420	µg/L	0.420	1.00	1	03/01/23 18:17	MSA	V30374
Bromodichloromethane	<0.160	µg/L	0.160	0.500	1	03/01/23 18:17	MSA	V30374
Bromoform	<1.50	µg/L	1.50	5.00	1	03/01/23 18:17	MSA	V30374
Bromomethane	<0.280	µg/L	0.280	1.00	1	03/01/23 18:17	MSA	V30374

Qualifiers/Definitions

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89717**

Sample ID : **MH-1**

Matrix: **Aqueous**

Sampled: **2/23/2023 8:10**

Analytical Method: 8260D

Prep Batch(es): **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Butylbenzene	<0.185	µg/L	0.185	1.00	1	03/01/23 18:17	MSA	V30374
sec-Butyl benzene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:17	MSA	V30374
tert-Butyl benzene	<0.920	µg/L	0.920	2.00	1	03/01/23 18:17	MSA	V30374
Carbon Disulfide	<0.150	µg/L	0.150	5.00	1	03/01/23 18:17	MSA	V30374
Carbon Tetrachloride	<0.180	µg/L	0.180	0.500	1	03/01/23 18:17	MSA	V30374
Chlorobenzene	<0.190	µg/L	0.190	0.500	1	03/01/23 18:17	MSA	V30374
Chlorodibromomethane	<0.190	µg/L	0.190	0.500	1	03/01/23 18:17	MSA	V30374
Chloroethane	<0.430	µg/L	0.430	1.00	1	03/01/23 18:17	MSA	V30374
Chloroform	2.21	µg/L	0.220	0.500	1	03/01/23 18:17	MSA	V30374
Chloromethane	<0.220	µg/L	0.220	0.500	1	03/01/23 18:17	MSA	V30374
2-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:17	MSA	V30374
4-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:17	MSA	V30374
Di-Isopropyl Ether (DIPE)	<0.960	µg/L	0.960	5.00	1	03/01/23 18:17	MSA	V30374
1,2-Dibromo-3-Chloropropane	<1.10	µg/L	1.10	2.00	1	03/01/23 18:17	MSA	V30374
1,2-Dibromoethane	<0.200	µg/L	0.200	0.500	1	03/01/23 18:17	MSA	V30374
Dibromomethane	<0.230	µg/L	0.230	0.500	1	03/01/23 18:17	MSA	V30374
1,2-Dichlorobenzene	<0.220	µg/L	0.220	0.500	1	03/01/23 18:17	MSA	V30374
1,3-Dichlorobenzene	<0.190	µg/L	0.190	0.500	1	03/01/23 18:17	MSA	V30374
1,4-Dichlorobenzene	<0.210	µg/L	0.210	0.500	1	03/01/23 18:17	MSA	V30374
Dichlorodifluoromethane	<1.20	µg/L	1.20	5.00	1	03/01/23 18:17	MSA	V30374
1,1-Dichloroethane	<0.240	µg/L	0.240	0.500	1	03/01/23 18:17	MSA	V30374
1,2-Dichloroethane	<0.150	µg/L	0.150	0.500	1	03/01/23 18:17	MSA	V30374

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89717**

Sample ID : **MH-1**

Matrix: **Aqueous**

Sampled: **2/23/2023 8:10**

Analytical Method: 8260D

Prep Batch(es): **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
1,1-Dichloroethene	<0.150	µg/L	0.150	0.500	1	03/01/23 18:17	MSA	V30374
cis-1,2-Dichloroethene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:17	MSA	V30374
trans-1,2-Dichloroethene	<0.180	µg/L	0.180	0.500	1	03/01/23 18:17	MSA	V30374
1,2-Dichloropropane	<0.190	µg/L	0.190	0.500	1	03/01/23 18:17	MSA	V30374
1,3-Dichloropropane	<0.130	µg/L	0.130	0.500	1	03/01/23 18:17	MSA	V30374
2,2-Dichloropropane	<0.210	µg/L	0.210	2.00	1	03/01/23 18:17	MSA	V30374
1,1-Dichloropropene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:17	MSA	V30374
cis-1,3-Dichloropropene	<0.210	µg/L	0.210	0.500	1	03/01/23 18:17	MSA	V30374
trans-1,3-Dichloropropene	<0.150	µg/L	0.150	0.500	1	03/01/23 18:17	MSA	V30374
Ethanol	<42.0	µg/L	42.0	200	1	03/01/23 18:17	MSA	V30374
Ethylbenzene	<0.170	µg/L	0.170	0.500	1	03/01/23 18:17	MSA	V30374
Ethyl Tertiary Butyl Ether (ETBE)	<1.80	µg/L	1.80	10.0	1	03/01/23 18:17	MSA	V30374
Hexachlorobutadiene	<0.350	µg/L	0.350	2.00	1	03/01/23 18:17	MSA	V30374
n-Hexane	<1.30	µg/L	1.30	10.0	1	03/01/23 18:17	MSA	V30374
2-Hexanone	<0.380	µg/L	0.380	5.00	1	03/01/23 18:17	MSA	V30374
Isopropylbenzene	<0.180	µg/L	0.180	5.00	1	03/01/23 18:17	MSA	V30374
4-Isopropyl toluene	<0.089	µg/L	0.089	0.500	1	03/01/23 18:17	MSA	V30374
Methyl Ethyl Ketone (MEK)	<0.710	µg/L	0.710	5.00	1	03/01/23 18:17	MSA	V30374
Methyl tert-butyl ether (MTBE)	0.340 J	µg/L	0.140	0.500	1	03/01/23 18:17	MSA	V30374
4-Methyl-2-Pentanone	<1.00	µg/L	1.00	5.00	1	03/01/23 18:17	MSA	V30374
Methylene Chloride	<0.330	µg/L	0.330	1.00	1	03/01/23 18:17	MSA	V30374
Naphthalene	<0.470	µg/L	0.470	1.00	1	03/01/23 18:17	MSA	V30374

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89717**

Sample ID : **MH-1**

Matrix: **Aqueous**

Sampled: **2/23/2023 8:10**

Analytical Method: 8260D

Prep Batch(es): **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Propylbenzene	<0.190	µg/L	0.190	0.500	1	03/01/23 18:17	MSA	V30374
Styrene	<0.220	µg/L	0.220	0.500	1	03/01/23 18:17	MSA	V30374
1,1,1,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	03/01/23 18:17	MSA	V30374
1,1,2,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	03/01/23 18:17	MSA	V30374
Tetrachloroethene	<0.220	µg/L	0.220	0.500	1	03/01/23 18:17	MSA	V30374
Toluene	<0.220	µg/L	0.220	0.500	1	03/01/23 18:17	MSA	V30374
1,2,3-Trichlorobenzene	<0.380	µg/L	0.380	2.00	1	03/01/23 18:17	MSA	V30374
1,2,4-Trichlorobenzene	<0.310	µg/L	0.310	1.00	1	03/01/23 18:17	MSA	V30374
1,1,1-Trichloroethane	<0.160	µg/L	0.160	0.500	1	03/01/23 18:17	MSA	V30374
1,1,2-Trichloroethane	<0.096	µg/L	0.096	0.500	1	03/01/23 18:17	MSA	V30374
Trichloroethene	<0.180	µg/L	0.180	0.500	1	03/01/23 18:17	MSA	V30374
Trichlorofluoromethane	<0.180	µg/L	0.180	0.500	1	03/01/23 18:17	MSA	V30374
1,2,3-Trichloropropane	<0.270	µg/L	0.270	1.00	1	03/01/23 18:17	MSA	V30374
1,3,5-Trimethylbenzene	<0.180	µg/L	0.180	0.500	1	03/01/23 18:17	MSA	V30374
Vinyl Acetate	<1.00	µg/L	1.00	2.00	1	03/01/23 18:17	MSA	V30374
Vinyl Chloride	<0.170	µg/L	0.170	0.500	1	03/01/23 18:17	MSA	V30374
o-Xylene	<0.210	µg/L	0.210	0.500	1	03/01/23 18:17	MSA	V30374
m,p-Xylene	<0.420	µg/L	0.420	1.00	1	03/01/23 18:17	MSA	V30374

**Qualifiers/
Definitions**

DF
J

Dilution Factor
Estimated value

H
MQL

Beyond holding time
Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89717**

Sample ID : **MH-1**

Matrix: **Aqueous**

Sampled: **2/23/2023 8:10**

Analytical Method: 8260D **Prep Batch(es):** **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Xylene (Total)	<0.21	µg/L	0.210	0.500	1	03/01/23 18:17		V30374
Surrogate: 4-Bromofluorobenzene	99.0		Limits: 80-124%		1	03/01/23 18:17	MSA	V30374
Surrogate: Dibromofluoromethane	100		Limits: 75-129%		1	03/01/23 18:17	MSA	V30374
Surrogate: 1,2-Dichloroethane - d4	95.2		Limits: 63-136%		1	03/01/23 18:17	MSA	V30374
Surrogate: Toluene-d8	99.8		Limits: 77-123%		1	03/01/23 18:17	MSA	V30374

Analytical Method: 8270E **Prep Batch(es):** **V30337** 03/02/23 09:05

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acenaphthene	<0.302	µg/L	0.302	2.00	1	03/02/23 18:11	JMV	V30501
Acenaphthylene	<0.297	µg/L	0.297	2.00	1	03/02/23 18:11	JMV	V30501
Aniline	<2.05	µg/L	2.05	5.00	1	03/02/23 18:11	JMV	V30501
Anthracene	<0.836	µg/L	0.836	2.00	1	03/02/23 18:11	JMV	V30501
Benzo(a)anthracene	<0.637	µg/L	0.637	2.00	1	03/02/23 18:11	JMV	V30501
Benzo(a)pyrene	<1.02	µg/L	1.02	2.00	1	03/02/23 18:11	JMV	V30501
Benzo(b)fluoranthene	<2.49	µg/L	2.49	5.00	1	03/02/23 18:11	JMV	V30501
Benzo(g,h,i)perylene	<1.01	µg/L	1.01	5.00	1	03/02/23 18:11	JMV	V30501
Benzo(k)fluoranthene	<1.99	µg/L	1.99	5.00	1	03/02/23 18:11	JMV	V30501
Benzoic Acid	<1.10	µg/L	1.10	10.0	1	03/02/23 18:11	JMV	V30501
Benzyl alcohol	<0.684	µg/L	0.684	5.00	1	03/02/23 18:11	JMV	V30501
Bis(2-Chloroethoxy)methane	<0.468	µg/L	0.468	5.00	1	03/02/23 18:11	JMV	V30501
Bis(2-Chloroethyl)ether	<1.04	µg/L	1.04	5.00	1	03/02/23 18:11	JMV	V30501

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89717**

Sample ID : **MH-1**

Matrix: **Aqueous**

Sampled: **2/23/2023 8:10**

Analytical Method: 8270E

Prep Batch(es): **V30337** 03/02/23 09:05

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Bis(2-Chloroisopropyl)ether	<1.08	µg/L	1.08	5.00	1	03/02/23 18:11	JMV	V30501
Bis(2-ethylhexyl)phthalate	<3.46	µg/L	3.46	10.0	1	03/02/23 18:11	JMV	V30501
4-Bromophenyl phenyl ether	<1.11	µg/L	1.11	5.00	1	03/02/23 18:11	JMV	V30501
Butyl benzyl phthalate	<1.83	µg/L	1.83	5.00	1	03/02/23 18:11	JMV	V30501
4-Chloro-3-methylphenol	<1.18	µg/L	1.18	5.00	1	03/02/23 18:11	JMV	V30501
4-Chloroaniline	<1.33	µg/L	1.33	5.00	1	03/02/23 18:11	JMV	V30501
2-Chloronaphthalene	<1.83	µg/L	1.83	20.0	1	03/02/23 18:11	JMV	V30501
2-Chlorophenol	<0.938	µg/L	0.938	10.0	1	03/02/23 18:11	JMV	V30501
4-Chlorophenyl phenyl ether	<1.71	µg/L	1.71	5.00	1	03/02/23 18:11	JMV	V30501
Chrysene	<0.405	µg/L	0.405	2.00	1	03/02/23 18:11	JMV	V30501
Dibenz(a,h)anthracene	<0.434	µg/L	0.434	2.00	1	03/02/23 18:11	JMV	V30501
Dibenzofuran	<0.856	µg/L	0.856	5.00	1	03/02/23 18:11	JMV	V30501
1,2-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	03/02/23 18:11	JMV	V30501
1,3-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	03/02/23 18:11	JMV	V30501
1,4-Dichlorobenzene	<2.05	µg/L	2.05	5.00	1	03/02/23 18:11	JMV	V30501
3,3'-Dichlorobenzidine	<1.89	µg/L	1.89	5.00	1	03/02/23 18:11	JMV	V30501
2,4-Dichlorophenol	<1.46	µg/L	1.46	10.0	1	03/02/23 18:11	JMV	V30501
Diethyl phthalate	<0.745	µg/L	0.745	5.00	1	03/02/23 18:11	JMV	V30501
Dimethyl phthalate	<0.939	µg/L	0.939	5.00	1	03/02/23 18:11	JMV	V30501
2,4-Dimethylphenol	<1.57	µg/L	1.57	20.0	1	03/02/23 18:11	JMV	V30501
Di-n-butyl phthalate	<2.06	µg/L	2.06	5.00	1	03/02/23 18:11	JMV	V30501
4,6-Dinitro-2-methylphenol	<2.07	µg/L	2.07	10.0	1	03/02/23 18:11	JMV	V30501

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89717**

Sample ID : **MH-1**

Matrix: **Aqueous**

Sampled: **2/23/2023 8:10**

Analytical Method: 8270E **Prep Batch(es):** **V30337** 03/02/23 09:05
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2,4-Dinitrophenol	<1.92	µg/L	1.92	10.0	1	03/02/23 18:11	JMV	V30501
2,4-Dinitrotoluene	<1.11	µg/L	1.11	5.00	1	03/02/23 18:11	JMV	V30501
2,6-Dinitrotoluene	<0.809	µg/L	0.809	5.00	1	03/02/23 18:11	JMV	V30501
Di-n-Octyl Phthalate	<1.65	µg/L	1.65	5.00	1	03/02/23 18:11	JMV	V30501
Fluoranthene	<0.250	µg/L	0.250	2.00	1	03/02/23 18:11	JMV	V30501
Fluorene	<0.807	µg/L	0.807	2.00	1	03/02/23 18:11	JMV	V30501
Hexachlorobenzene	<0.979	µg/L	0.979	5.00	1	03/02/23 18:11	JMV	V30501
Hexachlorobutadiene	<2.73	µg/L	2.73	5.00	1	03/02/23 18:11	JMV	V30501
Hexachlorocyclopentadiene	<2.05	µg/L	2.05	5.00	1	03/02/23 18:11	JMV	V30501
Hexachloroethane	<1.76	µg/L	1.76	5.00	1	03/02/23 18:11	JMV	V30501
Indeno(1,2,3-cd)pyrene	<0.477	µg/L	0.477	2.00	1	03/02/23 18:11	JMV	V30501
Isophorone	<0.444	µg/L	0.444	5.00	1	03/02/23 18:11	JMV	V30501
1-Methylnaphthalene	<1.14	µg/L	1.14	2.00	1	03/02/23 18:11	JMV	V30501
2-Methylnaphthalene	<0.666	µg/L	0.666	2.00	1	03/02/23 18:11	JMV	V30501
2-Methylphenol	<1.15	µg/L	1.15	5.00	1	03/02/23 18:11	JMV	V30501
3&4 Methylphenol	<0.880	µg/L	0.880	10.0	1	03/02/23 18:11	JMV	V30501
Naphthalene	<0.728	µg/L	0.728	2.00	1	03/02/23 18:11	JMV	V30501
2-Nitroaniline	<1.39	µg/L	1.39	5.00	1	03/02/23 18:11	JMV	V30501
3-Nitroaniline	<1.39	µg/L	1.39	5.00	1	03/02/23 18:11	JMV	V30501
4-Nitroaniline	<1.53	µg/L	1.53	5.00	1	03/02/23 18:11	JMV	V30501
Nitrobenzene	<0.905	µg/L	0.905	5.00	1	03/02/23 18:11	JMV	V30501
2-Nitrophenol	<0.493	µg/L	0.493	5.00	1	03/02/23 18:11	JMV	V30501

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89717**

Sample ID : **MH-1**

Matrix: **Aqueous**

Sampled: **2/23/2023 8:10**

Analytical Method: 8270E

Prep Batch(es): **V30337** 03/02/23 09:05

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
4-Nitrophenol	<1.23	µg/L	1.23	10.0	1	03/02/23 18:11	JMV	V30501
N-Nitrosodimethylamine	<0.450	µg/L	0.450	5.00	1	03/02/23 18:11	JMV	V30501
N-Nitrosodiphenylamine	<1.10	µg/L	1.10	5.00	1	03/02/23 18:11	JMV	V30501
N-Nitroso-di-n-propylamine	<0.641	µg/L	0.641	5.00	1	03/02/23 18:11	JMV	V30501
Pentachlorophenol	<1.43	µg/L	1.43	5.00	1	03/02/23 18:11	JMV	V30501
Phenanthrene	<0.428	µg/L	0.428	2.00	1	03/02/23 18:11	JMV	V30501
Phenol	<0.651	µg/L	0.651	5.00	1	03/02/23 18:11	JMV	V30501
Pyrene	<0.434	µg/L	0.434	2.00	1	03/02/23 18:11	JMV	V30501
1,2,4-Trichlorobenzene	<2.21	µg/L	2.21	5.00	1	03/02/23 18:11	JMV	V30501
2,4,5-Trichlorophenol	<1.31	µg/L	1.31	5.00	1	03/02/23 18:11	JMV	V30501
2,4,6-Trichlorophenol	<1.32	µg/L	1.32	5.00	1	03/02/23 18:11	JMV	V30501
Surrogate: Phenol-d5	27.8		Limits: 11-100%		1	03/02/23 18:11	JMV	8270E
Surrogate: 2-Fluorobiphenyl	77.4		Limits: 44-119%		1	03/02/23 18:11	JMV	V30501
Surrogate: 2-Fluorophenol	40.5		Limits: 19-119%		1	03/02/23 18:11	JMV	V30501
Surrogate: Nitrobenzene-d5	66.6		Limits: 44-120%		1	03/02/23 18:11	JMV	V30501
Surrogate: 4-Terphenyl-d14	91.6		Limits: 50-134%		1	03/02/23 18:11	JMV	V30501
Surrogate: 2,4,6-Tribromophenol	82.9		Limits: 43-140%		1	03/02/23 18:11	JMV	V30501

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

Brian Olin

3300 International Airport Dr., Suite 600
Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89718**

Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Method
Alkalinity (as CaCO ₃)	41	mg/L	0.8	5	1	03/06/23 17:15	SLO	2320B-2011
Ammonia Nitrogen	0.45	mg/L	0.04	0.10	1	03/13/23 12:19	CMJ	4500-NH3G-2011
Chloride	24.3	mg/L	0.370	1.00	1	03/02/23 20:05	CMJ	300.0
Nitrate+Nitrite-N	0.988	mg/L	0.044	0.100	1	03/01/23 10:21	CMJ	353.2
pH	6.2 H	s.u.			1	02/27/23 13:36	SMW	4500H+B-2011
Phosphorus	<0.212	mg/L	0.212	0.500	1	03/06/23 14:52	ANH	365.4

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89718**

Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Analytical Method: 8015C DRO

Prep Batch(es): **V30141** 02/27/23 09:08

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Diesel Range Organics (C10-C28)	<134	µg/L	134	500	1	02/27/23 19:48	AMP	V30177
Surrogate: OTP Surrogate	85.8		Limits: 50-150%		1	02/27/23 19:48	AMP	8015C DRO

Analytical Method: 8015C GRO

Prep Batch(es): **V30199** 02/27/23 08:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Gasoline Range Organics (C6-C10)	<38.0	µg/L	38.0	200	1	02/27/23 12:27	TBL	V30200
Surrogate: a,a,a-Trifluorotoluene	97.6		Limits: 57-132%		1	02/27/23 12:27	TBL	8015C GRO

Analytical Method: 8260D

Prep Batch(es): **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	3.08 J	µg/L	1.80	5.00	1	03/01/23 18:44	MSA	V30374
Acrolein	<2.00	µg/L	2.00	5.00	1	03/01/23 18:44	MSA	V30374
Acrylonitrile	<0.230	µg/L	0.230	5.00	1	03/01/23 18:44	MSA	V30374
Benzene	<0.180	µg/L	0.180	0.500	1	03/01/23 18:44	MSA	V30374
Bromobenzene	<0.210	µg/L	0.210	0.500	1	03/01/23 18:44	MSA	V30374
Bromochloromethane	<0.420	µg/L	0.420	1.00	1	03/01/23 18:44	MSA	V30374
Bromodichloromethane	<0.160	µg/L	0.160	0.500	1	03/01/23 18:44	MSA	V30374
Bromoform	<1.50	µg/L	1.50	5.00	1	03/01/23 18:44	MSA	V30374
Bromomethane	<0.280	µg/L	0.280	1.00	1	03/01/23 18:44	MSA	V30374

**Qualifiers/
Definitions**

DF	Dilution Factor	H	Beyond holding time
J	Estimated value	MQL	Method Quantitation Limit

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89718**

Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Analytical Method: 8260D

Prep Batch(es): **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Butylbenzene	<0.185	µg/L	0.185	1.00	1	03/01/23 18:44	MSA	V30374
sec-Butyl benzene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:44	MSA	V30374
tert-Butyl benzene	<0.920	µg/L	0.920	2.00	1	03/01/23 18:44	MSA	V30374
Carbon Disulfide	<0.150	µg/L	0.150	5.00	1	03/01/23 18:44	MSA	V30374
Carbon Tetrachloride	<0.180	µg/L	0.180	0.500	1	03/01/23 18:44	MSA	V30374
Chlorobenzene	<0.190	µg/L	0.190	0.500	1	03/01/23 18:44	MSA	V30374
Chlorodibromomethane	<0.190	µg/L	0.190	0.500	1	03/01/23 18:44	MSA	V30374
Chloroethane	<0.430	µg/L	0.430	1.00	1	03/01/23 18:44	MSA	V30374
Chloroform	0.871	µg/L	0.220	0.500	1	03/01/23 18:44	MSA	V30374
Chloromethane	<0.220	µg/L	0.220	0.500	1	03/01/23 18:44	MSA	V30374
2-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:44	MSA	V30374
4-Chlorotoluene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:44	MSA	V30374
Di-Isopropyl Ether (DIPE)	<0.960	µg/L	0.960	5.00	1	03/01/23 18:44	MSA	V30374
1,2-Dibromo-3-Chloropropane	<1.10	µg/L	1.10	2.00	1	03/01/23 18:44	MSA	V30374
1,2-Dibromoethane	<0.200	µg/L	0.200	0.500	1	03/01/23 18:44	MSA	V30374
Dibromomethane	<0.230	µg/L	0.230	0.500	1	03/01/23 18:44	MSA	V30374
1,2-Dichlorobenzene	<0.220	µg/L	0.220	0.500	1	03/01/23 18:44	MSA	V30374
1,3-Dichlorobenzene	<0.190	µg/L	0.190	0.500	1	03/01/23 18:44	MSA	V30374
1,4-Dichlorobenzene	<0.210	µg/L	0.210	0.500	1	03/01/23 18:44	MSA	V30374
Dichlorodifluoromethane	<1.20	µg/L	1.20	5.00	1	03/01/23 18:44	MSA	V30374
1,1-Dichloroethane	<0.240	µg/L	0.240	0.500	1	03/01/23 18:44	MSA	V30374
1,2-Dichloroethane	<0.150	µg/L	0.150	0.500	1	03/01/23 18:44	MSA	V30374

**Qualifiers/
Definitions**

DF
J

Dilution Factor
Estimated value

H
MQL

Beyond holding time
Method Quantitation Limit

00019

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89718**

Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Analytical Method: 8260D

Prep Batch(es): **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
1,1-Dichloroethene	<0.150	µg/L	0.150	0.500	1	03/01/23 18:44	MSA	V30374
cis-1,2-Dichloroethene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:44	MSA	V30374
trans-1,2-Dichloroethene	<0.180	µg/L	0.180	0.500	1	03/01/23 18:44	MSA	V30374
1,2-Dichloropropane	<0.190	µg/L	0.190	0.500	1	03/01/23 18:44	MSA	V30374
1,3-Dichloropropane	<0.130	µg/L	0.130	0.500	1	03/01/23 18:44	MSA	V30374
2,2-Dichloropropane	<0.210	µg/L	0.210	2.00	1	03/01/23 18:44	MSA	V30374
1,1-Dichloropropene	<0.200	µg/L	0.200	0.500	1	03/01/23 18:44	MSA	V30374
cis-1,3-Dichloropropene	<0.210	µg/L	0.210	0.500	1	03/01/23 18:44	MSA	V30374
trans-1,3-Dichloropropene	<0.150	µg/L	0.150	0.500	1	03/01/23 18:44	MSA	V30374
Ethanol	<42.0	µg/L	42.0	200	1	03/01/23 18:44	MSA	V30374
Ethylbenzene	<0.170	µg/L	0.170	0.500	1	03/01/23 18:44	MSA	V30374
Ethyl Tertiary Butyl Ether (ETBE)	<1.80	µg/L	1.80	10.0	1	03/01/23 18:44	MSA	V30374
Hexachlorobutadiene	<0.350	µg/L	0.350	2.00	1	03/01/23 18:44	MSA	V30374
n-Hexane	<1.30	µg/L	1.30	10.0	1	03/01/23 18:44	MSA	V30374
2-Hexanone	<0.380	µg/L	0.380	5.00	1	03/01/23 18:44	MSA	V30374
Isopropylbenzene	<0.180	µg/L	0.180	5.00	1	03/01/23 18:44	MSA	V30374
4-Isopropyl toluene	<0.089	µg/L	0.089	0.500	1	03/01/23 18:44	MSA	V30374
Methyl Ethyl Ketone (MEK)	<0.710	µg/L	0.710	5.00	1	03/01/23 18:44	MSA	V30374
Methyl tert-butyl ether (MTBE)	0.474 J	µg/L	0.140	0.500	1	03/01/23 18:44	MSA	V30374
4-Methyl-2-Pentanone	<1.00	µg/L	1.00	5.00	1	03/01/23 18:44	MSA	V30374
Methylene Chloride	<0.330	µg/L	0.330	1.00	1	03/01/23 18:44	MSA	V30374
Naphthalene	<0.470	µg/L	0.470	1.00	1	03/01/23 18:44	MSA	V30374

**Qualifiers/
Definitions**

DF Dilution Factor
J Estimated value

H Beyond holding time
MQL Method Quantitation Limit

00019

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Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89718**

Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Analytical Method: 8260D

Prep Batch(es): **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
n-Propylbenzene	<0.190	µg/L	0.190	0.500	1	03/01/23 18:44	MSA	V30374
Styrene	<0.220	µg/L	0.220	0.500	1	03/01/23 18:44	MSA	V30374
1,1,1,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	03/01/23 18:44	MSA	V30374
1,1,2,2-Tetrachloroethane	<0.160	µg/L	0.160	0.500	1	03/01/23 18:44	MSA	V30374
Tetrachloroethene	<0.220	µg/L	0.220	0.500	1	03/01/23 18:44	MSA	V30374
Toluene	<0.220	µg/L	0.220	0.500	1	03/01/23 18:44	MSA	V30374
1,2,3-Trichlorobenzene	<0.380	µg/L	0.380	2.00	1	03/01/23 18:44	MSA	V30374
1,2,4-Trichlorobenzene	<0.310	µg/L	0.310	1.00	1	03/01/23 18:44	MSA	V30374
1,1,1-Trichloroethane	<0.160	µg/L	0.160	0.500	1	03/01/23 18:44	MSA	V30374
1,1,2-Trichloroethane	<0.096	µg/L	0.096	0.500	1	03/01/23 18:44	MSA	V30374
Trichloroethene	<0.180	µg/L	0.180	0.500	1	03/01/23 18:44	MSA	V30374
Trichlorofluoromethane	<0.180	µg/L	0.180	0.500	1	03/01/23 18:44	MSA	V30374
1,2,3-Trichloropropane	<0.270	µg/L	0.270	1.00	1	03/01/23 18:44	MSA	V30374
1,3,5-Trimethylbenzene	<0.180	µg/L	0.180	0.500	1	03/01/23 18:44	MSA	V30374
Vinyl Acetate	<1.00	µg/L	1.00	2.00	1	03/01/23 18:44	MSA	V30374
Vinyl Chloride	<0.170	µg/L	0.170	0.500	1	03/01/23 18:44	MSA	V30374
o-Xylene	<0.210	µg/L	0.210	0.500	1	03/01/23 18:44	MSA	V30374
m,p-Xylene	<0.420	µg/L	0.420	1.00	1	03/01/23 18:44	MSA	V30374

**Qualifiers/
Definitions**

DF
J

Dilution Factor
Estimated value

H
MQL

Beyond holding time
Method Quantitation Limit

00019

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89718**

Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Analytical Method: 8260D **Prep Batch(es):** **V30373** 03/01/23 09:00

Prep Method: 5030B

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Xylene (Total)	<0.21	µg/L	0.210	0.500	1	03/01/23 18:44		V30374
Surrogate: 4-Bromofluorobenzene	97.4		Limits: 80-124%		1	03/01/23 18:44	MSA	V30374
Surrogate: Dibromofluoromethane	98.4		Limits: 75-129%		1	03/01/23 18:44	MSA	V30374
Surrogate: 1,2-Dichloroethane - d4	95.0		Limits: 63-136%		1	03/01/23 18:44	MSA	V30374
Surrogate: Toluene-d8	99.0		Limits: 77-123%		1	03/01/23 18:44	MSA	V30374

Analytical Method: 8270E **Prep Batch(es):** **V30337** 03/02/23 09:05

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acenaphthene	<0.302	µg/L	0.302	2.00	1	03/02/23 18:34	JMV	V30501
Acenaphthylene	<0.297	µg/L	0.297	2.00	1	03/02/23 18:34	JMV	V30501
Aniline	<2.05	µg/L	2.05	5.00	1	03/02/23 18:34	JMV	V30501
Anthracene	<0.836	µg/L	0.836	2.00	1	03/02/23 18:34	JMV	V30501
Benzo(a)anthracene	<0.637	µg/L	0.637	2.00	1	03/02/23 18:34	JMV	V30501
Benzo(a)pyrene	<1.02	µg/L	1.02	2.00	1	03/02/23 18:34	JMV	V30501
Benzo(b)fluoranthene	<2.49	µg/L	2.49	5.00	1	03/02/23 18:34	JMV	V30501
Benzo(g,h,i)perylene	<1.01	µg/L	1.01	5.00	1	03/02/23 18:34	JMV	V30501
Benzo(k)fluoranthene	<1.99	µg/L	1.99	5.00	1	03/02/23 18:34	JMV	V30501
Benzoic Acid	<1.10	µg/L	1.10	10.0	1	03/02/23 18:34	JMV	V30501
Benzyl alcohol	<0.684	µg/L	0.684	5.00	1	03/02/23 18:34	JMV	V30501
Bis(2-Chloroethoxy)methane	<0.468	µg/L	0.468	5.00	1	03/02/23 18:34	JMV	V30501
Bis(2-Chloroethyl)ether	<1.04	µg/L	1.04	5.00	1	03/02/23 18:34	JMV	V30501

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89718**

Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Analytical Method: 8270E **Prep Batch(es):** **V30337** 03/02/23 09:05
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Bis(2-Chloroisopropyl)ether	<1.08	µg/L	1.08	5.00	1	03/02/23 18:34	JMV	V30501
Bis(2-ethylhexyl)phthalate	<3.46	µg/L	3.46	10.0	1	03/02/23 18:34	JMV	V30501
4-Bromophenyl phenyl ether	<1.11	µg/L	1.11	5.00	1	03/02/23 18:34	JMV	V30501
Butyl benzyl phthalate	<1.83	µg/L	1.83	5.00	1	03/02/23 18:34	JMV	V30501
4-Chloro-3-methylphenol	<1.18	µg/L	1.18	5.00	1	03/02/23 18:34	JMV	V30501
4-Chloroaniline	<1.33	µg/L	1.33	5.00	1	03/02/23 18:34	JMV	V30501
2-Chloronaphthalene	<1.83	µg/L	1.83	20.0	1	03/02/23 18:34	JMV	V30501
2-Chlorophenol	<0.938	µg/L	0.938	10.0	1	03/02/23 18:34	JMV	V30501
4-Chlorophenyl phenyl ether	<1.71	µg/L	1.71	5.00	1	03/02/23 18:34	JMV	V30501
Chrysene	<0.405	µg/L	0.405	2.00	1	03/02/23 18:34	JMV	V30501
Dibenz(a,h)anthracene	<0.434	µg/L	0.434	2.00	1	03/02/23 18:34	JMV	V30501
Dibenzofuran	<0.856	µg/L	0.856	5.00	1	03/02/23 18:34	JMV	V30501
1,2-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	03/02/23 18:34	JMV	V30501
1,3-Dichlorobenzene	<2.00	µg/L	2.00	5.00	1	03/02/23 18:34	JMV	V30501
1,4-Dichlorobenzene	<2.05	µg/L	2.05	5.00	1	03/02/23 18:34	JMV	V30501
3,3'-Dichlorobenzidine	<1.89	µg/L	1.89	5.00	1	03/02/23 18:34	JMV	V30501
2,4-Dichlorophenol	<1.46	µg/L	1.46	10.0	1	03/02/23 18:34	JMV	V30501
Diethyl phthalate	<0.745	µg/L	0.745	5.00	1	03/02/23 18:34	JMV	V30501
Dimethyl phthalate	<0.939	µg/L	0.939	5.00	1	03/02/23 18:34	JMV	V30501
2,4-Dimethylphenol	<1.57	µg/L	1.57	20.0	1	03/02/23 18:34	JMV	V30501
Di-n-butyl phthalate	<2.06	µg/L	2.06	5.00	1	03/02/23 18:34	JMV	V30501
4,6-Dinitro-2-methylphenol	<2.07	µg/L	2.07	10.0	1	03/02/23 18:34	JMV	V30501

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

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Brian Olin

3300 International Airport Dr., Suite 600

Charlotte, NC 28208

Project Greenville PW

Information :

Report Date : 03/14/2023

Received : 02/24/2023

Report Number : **23-055-0102**

REPORT OF ANALYSIS

Lab No : **89718**

Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Analytical Method: 8270E **Prep Batch(es):** **V30337** 03/02/23 09:05
Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2,4-Dinitrophenol	<1.92	µg/L	1.92	10.0	1	03/02/23 18:34	JMV	V30501
2,4-Dinitrotoluene	<1.11	µg/L	1.11	5.00	1	03/02/23 18:34	JMV	V30501
2,6-Dinitrotoluene	<0.809	µg/L	0.809	5.00	1	03/02/23 18:34	JMV	V30501
Di-n-Octyl Phthalate	<1.65	µg/L	1.65	5.00	1	03/02/23 18:34	JMV	V30501
Fluoranthene	<0.250	µg/L	0.250	2.00	1	03/02/23 18:34	JMV	V30501
Fluorene	<0.807	µg/L	0.807	2.00	1	03/02/23 18:34	JMV	V30501
Hexachlorobenzene	<0.979	µg/L	0.979	5.00	1	03/02/23 18:34	JMV	V30501
Hexachlorobutadiene	<2.73	µg/L	2.73	5.00	1	03/02/23 18:34	JMV	V30501
Hexachlorocyclopentadiene	<2.05	µg/L	2.05	5.00	1	03/02/23 18:34	JMV	V30501
Hexachloroethane	<1.76	µg/L	1.76	5.00	1	03/02/23 18:34	JMV	V30501
Indeno(1,2,3-cd)pyrene	<0.477	µg/L	0.477	2.00	1	03/02/23 18:34	JMV	V30501
Isophorone	<0.444	µg/L	0.444	5.00	1	03/02/23 18:34	JMV	V30501
1-Methylnaphthalene	<1.14	µg/L	1.14	2.00	1	03/02/23 18:34	JMV	V30501
2-Methylnaphthalene	<0.666	µg/L	0.666	2.00	1	03/02/23 18:34	JMV	V30501
2-Methylphenol	<1.15	µg/L	1.15	5.00	1	03/02/23 18:34	JMV	V30501
3&4 Methylphenol	<0.880	µg/L	0.880	10.0	1	03/02/23 18:34	JMV	V30501
Naphthalene	<0.728	µg/L	0.728	2.00	1	03/02/23 18:34	JMV	V30501
2-Nitroaniline	<1.39	µg/L	1.39	5.00	1	03/02/23 18:34	JMV	V30501
3-Nitroaniline	<1.39	µg/L	1.39	5.00	1	03/02/23 18:34	JMV	V30501
4-Nitroaniline	<1.53	µg/L	1.53	5.00	1	03/02/23 18:34	JMV	V30501
Nitrobenzene	<0.905	µg/L	0.905	5.00	1	03/02/23 18:34	JMV	V30501
2-Nitrophenol	<0.493	µg/L	0.493	5.00	1	03/02/23 18:34	JMV	V30501

Qualifiers/Definitions	DF	Dilution Factor	H	Beyond holding time
	J	Estimated value	MQL	Method Quantitation Limit

00019

F&R, Inc. - Charlotte

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Sample ID : **MH-3a**

Matrix: **Aqueous**

Sampled: **2/23/2023 9:00**

Analytical Method: 8270E **Prep Batch(es):** **V30337** 03/02/23 09:05

Prep Method: 3510C

Test	Results	Units	MDL	MQL	DF	Date / Time Analyzed	By	Analytical Batch
4-Nitrophenol	<1.23	µg/L	1.23	10.0	1	03/02/23 18:34	JMV	V30501
N-Nitrosodimethylamine	<0.450	µg/L	0.450	5.00	1	03/02/23 18:34	JMV	V30501
N-Nitrosodiphenylamine	<1.10	µg/L	1.10	5.00	1	03/02/23 18:34	JMV	V30501
N-Nitroso-di-n-propylamine	<0.641	µg/L	0.641	5.00	1	03/02/23 18:34	JMV	V30501
Pentachlorophenol	<1.43	µg/L	1.43	5.00	1	03/02/23 18:34	JMV	V30501
Phenanthrene	<0.428	µg/L	0.428	2.00	1	03/02/23 18:34	JMV	V30501
Phenol	<0.651	µg/L	0.651	5.00	1	03/02/23 18:34	JMV	V30501
Pyrene	<0.434	µg/L	0.434	2.00	1	03/02/23 18:34	JMV	V30501
1,2,4-Trichlorobenzene	<2.21	µg/L	2.21	5.00	1	03/02/23 18:34	JMV	V30501
2,4,5-Trichlorophenol	<1.31	µg/L	1.31	5.00	1	03/02/23 18:34	JMV	V30501
2,4,6-Trichlorophenol	<1.32	µg/L	1.32	5.00	1	03/02/23 18:34	JMV	V30501
Surrogate: Phenol-d5	28.1		Limits: 11-100%		1	03/02/23 18:34	JMV	8270E
Surrogate: 2-Fluorobiphenyl	76.2		Limits: 44-119%		1	03/02/23 18:34	JMV	V30501
Surrogate: 2-Fluorophenol	42.6		Limits: 19-119%		1	03/02/23 18:34	JMV	V30501
Surrogate: Nitrobenzene-d5	68.6		Limits: 44-120%		1	03/02/23 18:34	JMV	V30501
Surrogate: 4-Terphenyl-d14	88.4		Limits: 50-134%		1	03/02/23 18:34	JMV	V30501
Surrogate: 2,4,6-Tribromophenol	83.2		Limits: 43-140%		1	03/02/23 18:34	JMV	V30501

**Qualifiers/
Definitions**

DF

Dilution Factor

H

Beyond holding time

114 OAKMONT DRIVE
GREENVILLE, N.C. 27858

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 9

WAYPOINT ANALYTICAL (MISC. TESTING)
ATTN: TERRI COLE
P.O. BOX 240543
CHARLOTTE, NC 24224-0543

DATE COLLECTED: 02/23/23
DATE REPORTED : 03/08/23

REVIEWED BY: 

PARAMETERS	MH-1	MH-3A	Analysis		Method
			Date	Analyst	Code
Salinity, ppt	0.12	0.11	03/06/23	HMV	2520B-11
Salinity Analysis Temperature, °C	20	21	03/06/23	HMV	2550B-10

02/27/2023 07:57:10

Export Batch Report

Export Batch Id : 3069EXP



To: Environment 1, Inc.
 P. O. Box 7085 / 114 Oakmont Dr.
 Greenville, NC 278357085

Created: 2/27/2023 07:56:52
 Computer: WPALMS-021
 User: Angela D Overcash
 Project Manager: Angela D Overcash

From: Waypoint Analytical, LLC (Charlotte)
 449 Springbrook Road
 Charlotte, NC 28217
 704-529-6364

Report No	Sample Date	Rush	Matrix	Lab No	Method No
23-055-0102	02/23/2023 08:10		AQU	89717	SM-2520
23-055-0102	02/23/2023 09:00		AQU	89718	SM-2520

Fee Code	Description
Salinity	MH1
Salinity	MH3A

Sampled By	Method of Shipment <i>FEDEX</i>	Blank / Cooler Temp. <i>10°C</i>
Remarks		
Relinquished By (sign) <i>[Signature]</i>	Date / Time <i>2/27/23</i>	Received By (sign) <i>[Signature]</i>
Relinquished By (sign)	Date / Time	Received By (sign)
		Date / Time <i>2/28/23</i>



2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 • Fax 901.213.2440
www.waypointanalytical.com

Waypoint Analytical LLC, a national leader in environmental and agricultural testing, announces the successful transaction to acquire Environment 1, Inc., a Greenville, NC based environmental testing company.

Environment 1, Inc., an environmental testing and field services provider has been a business concern since 1974. The company employs very experienced, educated, and talented scientists, laboratory technicians, and support personnel in Greenville, NC. Their expertise is supported by environmental certifications held in the markets served including comprehensive environmental laboratory certifications granted by the State of North Carolina.

Environment 1, Inc. provides a wide array of laboratory and field services to industries, municipalities, local and state agencies, and residential customers. The wastewater and drinking water regulatory compliance testing offered by the company is unparalleled in quality and service consistency. This has allowed for steady growth for decades through client recommendations and word of mouth.

The acquisition of Environment 1, Inc. allows Waypoint Analytical LLC, now with three laboratory locations and numerous field services and support locations in North Carolina to provide more support and analytical depth with greater expediency than any other laboratory in the state. This acquisition reflects the ongoing efforts of Waypoint Analytical LLC to make available the best laboratory services and field support services to its clients wherever they are located.

Comment from **Nathan A. Pera IV**, Waypoint Analytical LLC's Environmental Division President: "The addition of Environment 1 to the Waypoint Analytical Family is just one more step toward our goal of improving the lives of the people in the communities in which we operate. We do this by offering higher quality, client-focused and ever-expanding laboratory services to the businesses and agencies therein. We are extremely pleased to welcome the talented Environment 1 Team to our family. Their dedication to service, their reputation for outstanding quality, and the E-1 geographic footprint further strengthen Waypoint's reputation and helps cement our ranking as the best in lab service. Expanding our footprint to include the addition of the laboratory in eastern North Carolina demonstrates our commitment to the industries and to the communities that Waypoint Analytical calls home. Waypoint is embracing those clients and communities who are responsible for our success."

Comment from **Mr. Mark Oliveira**, President of Environment 1, Inc.: "Elizabeth and our team at Environment 1 have dedicated many years to offering the best quality and service to our customers. The Waypoint Analytical vision of bringing lab testing and lab support services closer to the people needing those services, especially in those communities that other lab companies have no interest in investing in, made our choice for the future an easy one. Waypoint allows the Environment 1 lab team to expand upon our 49 years of dedication to our customers and our community. They bring all of the resources that smaller labs cannot access. We look forward to tapping into the diverse talent and experience of Waypoint's personnel, redundant North Carolina certifications, equipment, and wide-ranging capabilities. Waypoint offers all the advantages of a large laboratory while focusing on the personalized service that our clients deserve. Our team is excited to be joining forces with Waypoint. We look forward to providing more resources to our customers, employees, and community."

For more information, please visit www.waypointanalytical.com or contact:

Ann Baynor – abaynor@environment1inc.com or Mark Oliveira – moliveira@environment1inc.com

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Analytical Batch: V30451
Analysis Method: 2320B-2011
Analysis Description: Alkalinity

Lab Reagent Blank LRB Matrix: AQU
Associated Lab Samples: 89717

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Alkalinity (as CaCO3)	mg/L	<0.8	0.8	5	03/03/23 17:00

Laboratory Control Sample LCS

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Alkalinity (as CaCO3)	mg/L	250	245	98.0	90-110

Duplicate V 89697-DUP

Parameter	Units	Result	DUP Result	RPD	Max RPD	Analyzed
Alkalinity (as CaCO3)	mg/L	900	960	6.4	20	03/03/23 17:00

Quality Control Data

Client ID: F&R, Inc. - Charlotte

Project Description: Greenville PW

Report No: 23-055-0102

QC Analytical Batch: V30506

Analysis Method: 2320B-2011

Analysis Description: Alkalinity

Lab Reagent Blank LRB Matrix: AQU

Associated Lab Samples: 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Alkalinity (as CaCO3)	mg/L	<0.8	0.8	5	03/06/23 17:15

Laboratory Control Sample LCS

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Alkalinity (as CaCO3)	mg/L	250	247	99.0	90-110

Duplicate V 89781-DUP

Parameter	Units	Result	DUP Result	RPD	Max RPD	Analyzed
Alkalinity (as CaCO3)	mg/L	31	35	12.1	20	03/06/23 17:15

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30357 **QC Analytical Batch(es):** V30361
QC Prep Batch Method: 300.0 (Prep) **Analysis Method:** 300.0
Analysis Description: Anions by Ion Chromatography

Lab Reagent Blank LRB-V30357 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Chloride	mg/L	<0.370	0.370	1.00	03/02/23 12:34

Laboratory Control Sample LCS-V30357

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Chloride	mg/L	40.0	40.0	100	90-110

Matrix Spike & Matrix Spike Duplicate V 89452-MS-V30357 V 89452-MSD-V30357

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Chloride	mg/L	18.2	40.0	40.0	58.8	58.8	102	102	90-110	0.0	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30209 **QC Analytical Batch(es):** V30296
QC Prep Batch Method: EPA-353.2 (PREP) **Analysis Method:** 353.2
Analysis Description: Nitrate + Nitrite Nitrogen

Lab Reagent Blank LRB-V30209 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Nitrate+Nitrite-N	mg/L	<0.044	0.044	0.100	03/01/23 10:21

Laboratory Control Sample LCS-V30209

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Nitrate+Nitrite-N	mg/L	1.00	0.940	94.0	90-110

Matrix Spike & Matrix Spike Duplicate V 89717-MS-V30209 V 89717-MSD-V30209

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Nitrate+Nitrite-N	mg/L	1.09	1.00	1.00	2.12	2.12	103	103	80-120	0.0	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: L667748 **QC Analytical Batch(es):** L667844
QC Prep Batch Method: TKN/TKP Digestion **Analysis Method:** 365.4
Analysis Description: Total Phosphorus

Lab Reagent Blank LRB-L667748 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Phosphorus	mg/L	<0.212	0.212	0.500	03/06/23 14:18

Laboratory Control Sample LCS-L667748

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Phosphorus	mg/L	2.00	2.12	106	80-120

Duplicate L 93239-DUP-L667748

Parameter	Units	Result	DUP Result	RPD	Max RPD	Analyzed
Phosphorus	mg/L	< 0.500	<0.500	0.0	20.0	03/06/23 14:22

Matrix Spike L 93239-MS-L667748

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	%Rec Limits	Max RPD
Phosphorus	mg/L	< 0.212	2.00		2.14		107	70-130	

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Analytical Batch: V30170
Analysis Method: 4500H+B-2011
Analysis Description: pH

Laboratory Control Sample LCS

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
pH	s.u.	6.8	6.8	100	3.54-101.4

Duplicate V 89476-DUP

Parameter	Units	Result	DUP Result	Criteria	Analyzed
pH	s.u.	6.3	6.3	+/- 0.1	02/27/23 13:36

Duplicate V 89478-DUP

Parameter	Units	Result	DUP Result	Criteria	Analyzed
pH	s.u.	6.3	6.4	+/- 0.1	02/27/23 13:36

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30707 **QC Analytical Batch(es):** V30787
QC Prep Batch Method: 4500-NH3G (Prep) **Analysis Method:** 4500-NH3G-2011
Analysis Description: Ammonia

Lab Reagent Blank LRB-V30707 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed
Ammonia Nitrogen	mg/L	<0.04	0.04	0.10	03/13/23 12:19

Laboratory Control Sample LCS-V30707

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Ammonia Nitrogen	mg/L	2.50	2.43	97.0	90-110

Matrix Spike & Matrix Spike Duplicate V 89718-MS-V30707 V 89718-MSD-V30707

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Ammonia Nitrogen	mg/L	0.45	2.50	2.50	2.86	2.80	96.0	94.0	80-120	2.1	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30141 **QC Analytical Batch(es):** V30177
QC Prep Batch Method: 3510C **Analysis Method:** 8015C DRO
Analysis Description: Total Petroleum Hydrocarbons - Extractable

Lab Reagent Blank LRB-V30141 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Diesel Range Organics (C10-C28)	µg/L	<134	134	500	02/27/23 16:17		
OTP Surrogate (S)					02/27/23 16:17	82.7	50-150

Laboratory Control Sample & LCSD LCS-V30141 LCSD-V30141

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Diesel Range Organics (C10-C28)	µg/L	2000	2090	1230	105	61.5	53-135	51.8*	20.0
OTP Surrogate (S)					82.5	50.0	50-150		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30199 **QC Analytical Batch(es):** V30200
QC Prep Batch Method: 5030B **Analysis Method:** 8015C GRO
Analysis Description: Total Petroleum Hydrocarbons - Volatile

Lab Reagent Blank LRB-V30199 Matrix: AQU
 Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Gasoline Range Organics (C6-C10)	µg/L	<38.0	38.0	200	02/27/23 11:31		
a,a,a-Trifluorotoluene (S)					02/27/23 11:31	91.7	57-132

Laboratory Control Sample LCS-V30199

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Gasoline Range Organics (C6-C10)	µg/L	1000	1160	116	60-138
a,a,a-Trifluorotoluene (S)				108	57-132

Matrix Spike & Matrix Spike Duplicate V 89717-MS-V30199 V 89717-MSD-V30199

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Gasoline Range Organics (C6-C10)	µg/L	< 38.0	1000	1000	1040	1020	104	102	69-130	1.9	24.0
a,a,a-Trifluorotoluene (S)							98.7	84.4	57-132		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30373 **QC Analytical Batch(es):** V30374
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30373 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Acetone	µg/L	<1.80	1.80	5.00	03/01/23 13:44		
Acrolein	µg/L	<2.00	2.00	5.00	03/01/23 13:44		
Acrylonitrile	µg/L	<0.230	0.230	5.00	03/01/23 13:44		
Benzene	µg/L	<0.180	0.180	0.500	03/01/23 13:44		
Bromobenzene	µg/L	<0.210	0.210	0.500	03/01/23 13:44		
Bromochloromethane	µg/L	<0.420	0.420	1.00	03/01/23 13:44		
Bromodichloromethane	µg/L	<0.160	0.160	0.500	03/01/23 13:44		
Bromoform	µg/L	<1.50	1.50	5.00	03/01/23 13:44		
Bromomethane	µg/L	<0.280	0.280	1.00	03/01/23 13:44		
n-Butylbenzene	µg/L	<0.185	0.185	1.00	03/01/23 13:44		
sec-Butyl benzene	µg/L	<0.200	0.200	0.500	03/01/23 13:44		
tert-Butyl benzene	µg/L	<0.920	0.920	2.00	03/01/23 13:44		
Carbon Disulfide	µg/L	<0.150	0.150	5.00	03/01/23 13:44		
Carbon Tetrachloride	µg/L	<0.180	0.180	0.500	03/01/23 13:44		
Chlorobenzene	µg/L	<0.190	0.190	0.500	03/01/23 13:44		
Chlorodibromomethane	µg/L	<0.190	0.190	0.500	03/01/23 13:44		
Chloroethane	µg/L	<0.430	0.430	1.00	03/01/23 13:44		
Chloroform	µg/L	<0.220	0.220	0.500	03/01/23 13:44		
Chloromethane	µg/L	<0.220	0.220	0.500	03/01/23 13:44		
2-Chlorotoluene	µg/L	<0.200	0.200	0.500	03/01/23 13:44		
4-Chlorotoluene	µg/L	<0.200	0.200	0.500	03/01/23 13:44		
Di-Isopropyl Ether (DIPE)	µg/L	<0.960	0.960	5.00	03/01/23 13:44		
1,2-Dibromo-3-Chloropropane	µg/L	<1.10	1.10	2.00	03/01/23 13:44		
1,2-Dibromoethane	µg/L	<0.200	0.200	0.500	03/01/23 13:44		
Dibromomethane	µg/L	<0.230	0.230	0.500	03/01/23 13:44		
1,2-Dichlorobenzene	µg/L	<0.220	0.220	0.500	03/01/23 13:44		
1,3-Dichlorobenzene	µg/L	<0.190	0.190	0.500	03/01/23 13:44		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30373 **QC Analytical Batch(es):** V30374
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30373 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
1,4-Dichlorobenzene	µg/L	<0.210	0.210	0.500	03/01/23 13:44		
Dichlorodifluoromethane	µg/L	<1.20	1.20	5.00	03/01/23 13:44		
1,1-Dichloroethane	µg/L	<0.240	0.240	0.500	03/01/23 13:44		
1,2-Dichloroethane	µg/L	<0.150	0.150	0.500	03/01/23 13:44		
1,1-Dichloroethene	µg/L	<0.150	0.150	0.500	03/01/23 13:44		
cis-1,2-Dichloroethene	µg/L	<0.200	0.200	0.500	03/01/23 13:44		
trans-1,2-Dichloroethene	µg/L	<0.180	0.180	0.500	03/01/23 13:44		
1,2-Dichloropropane	µg/L	<0.190	0.190	0.500	03/01/23 13:44		
1,3-Dichloropropane	µg/L	<0.130	0.130	0.500	03/01/23 13:44		
2,2-Dichloropropane	µg/L	<0.210	0.210	2.00	03/01/23 13:44		
1,1-Dichloropropene	µg/L	<0.200	0.200	0.500	03/01/23 13:44		
cis-1,3-Dichloropropene	µg/L	<0.210	0.210	0.500	03/01/23 13:44		
trans-1,3-Dichloropropene	µg/L	<0.150	0.150	0.500	03/01/23 13:44		
Ethanol	µg/L	<42.0	42.0	200	03/01/23 13:44		
Ethylbenzene	µg/L	<0.170	0.170	0.500	03/01/23 13:44		
Ethyl Tertiary Butyl Ether (ETBE)	µg/L	<1.80	1.80	10.0	03/01/23 13:44		
Hexachlorobutadiene	µg/L	<0.350	0.350	2.00	03/01/23 13:44		
n-Hexane	µg/L	<1.30	1.30	10.0	03/01/23 13:44		
2-Hexanone	µg/L	<0.380	0.380	5.00	03/01/23 13:44		
Isopropylbenzene	µg/L	<0.180	0.180	5.00	03/01/23 13:44		
4-Isopropyl toluene	µg/L	<0.089	0.089	0.500	03/01/23 13:44		
Methyl Ethyl Ketone (MEK)	µg/L	<0.710	0.710	5.00	03/01/23 13:44		
Methyl tert-butyl ether (MTBE)	µg/L	<0.140	0.140	0.500	03/01/23 13:44		
4-Methyl-2-Pentanone	µg/L	<1.00	1.00	5.00	03/01/23 13:44		
Methylene Chloride	µg/L	<0.330	0.330	1.00	03/01/23 13:44		
Naphthalene	µg/L	<0.470	0.470	1.00	03/01/23 13:44		
n-Propylbenzene	µg/L	<0.190	0.190	0.500	03/01/23 13:44		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30373 **QC Analytical Batch(es):** V30374
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30373 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Styrene	µg/L	<0.220	0.220	0.500	03/01/23 13:44		
1,1,1,2-Tetrachloroethane	µg/L	<0.160	0.160	0.500	03/01/23 13:44		
1,1,2,2-Tetrachloroethane	µg/L	<0.160	0.160	0.500	03/01/23 13:44		
Tetrachloroethene	µg/L	<0.220	0.220	0.500	03/01/23 13:44		
Toluene	µg/L	<0.220	0.220	0.500	03/01/23 13:44		
1,2,3-Trichlorobenzene	µg/L	<0.380	0.380	2.00	03/01/23 13:44		
1,2,4-Trichlorobenzene	µg/L	<0.310	0.310	1.00	03/01/23 13:44		
1,1,1-Trichloroethane	µg/L	<0.160	0.160	0.500	03/01/23 13:44		
1,1,2-Trichloroethane	µg/L	<0.096	0.096	0.500	03/01/23 13:44		
Trichloroethene	µg/L	<0.180	0.180	0.500	03/01/23 13:44		
Trichlorofluoromethane	µg/L	<0.180	0.180	0.500	03/01/23 13:44		
1,2,3-Trichloropropane	µg/L	<0.270	0.270	1.00	03/01/23 13:44		
1,3,5-Trimethylbenzene	µg/L	<0.180	0.180	0.500	03/01/23 13:44		
Vinyl Acetate	µg/L	<1.00	1.00	2.00	03/01/23 13:44		
Vinyl Chloride	µg/L	<0.170	0.170	0.500	03/01/23 13:44		
o-Xylene	µg/L	<0.210	0.210	0.500	03/01/23 13:44		
m,p-Xylene	µg/L	<0.420	0.420	1.00	03/01/23 13:44		
4-Bromofluorobenzene (S)					03/01/23 13:44	96.6	80-124
Dibromofluoromethane (S)					03/01/23 13:44	97.6	75-129
1,2-Dichloroethane - d4 (S)					03/01/23 13:44	93.2	63-136
Toluene-d8 (S)					03/01/23 13:44	99.0	77-123

Laboratory Control Sample & LCSD LCS-V30373 LCSD-V30373

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Acetone	µg/L	40.0	41.5	42.8	104	107	40-166	3.0	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30373 **QC Analytical Batch(es):** V30374
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30373 LCSD-V30373

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Acrolein	µg/L	40.0	42.9	41.3	107	103	70-130	3.8	20.0
Acrylonitrile	µg/L	40.0	42.8	42.0	107	105	81-127	1.8	20.0
Benzene	µg/L	20.0	19.5	19.4	97.5	97.0	77-128	0.5	20.0
Bromobenzene	µg/L	20.0	19.7	19.6	98.5	98.0	78-129	0.5	20.0
Bromochloromethane	µg/L	20.0	20.3	20.6	102	103	78-135	1.4	20.0
Bromodichloromethane	µg/L	20.0	19.1	19.4	95.5	97.0	76-138	1.5	20.0
Bromoform	µg/L	20.0	18.4	18.5	92.0	92.5	71-135	0.5	20.0
Bromomethane	µg/L	20.0	19.2	19.3	96.0	96.5	41-168	0.5	20.0
n-Butylbenzene	µg/L	20.0	23.6	23.9	118	120	68-134	1.2	20.0
sec-Butyl benzene	µg/L	20.0	21.5	21.2	108	106	71-131	1.4	20.0
tert-Butyl benzene	µg/L	20.0	20.5	20.6	103	103	70-132	0.4	20.0
Carbon Disulfide	µg/L	20.0	20.1	20.1	101	101	59-135	0.0	20.0
Carbon Tetrachloride	µg/L	20.0	19.5	19.5	97.5	97.5	72-142	0.0	20.0
Chlorobenzene	µg/L	20.0	20.2	20.1	101	101	78-119	0.4	20.0
Chlorodibromomethane	µg/L	20.0	20.3	20.6	102	103	75-134	1.4	20.0
Chloroethane	µg/L	20.0	21.5	20.7	108	104	57-142	3.7	20.0
Chloroform	µg/L	20.0	19.3	20.0	96.5	100	77-130	3.5	20.0
Chloromethane	µg/L	20.0	18.8	19.1	94.0	95.5	47-145	1.5	20.0
2-Chlorotoluene	µg/L	20.0	22.3	20.0	112	100	74-126	10.8	20.0
4-Chlorotoluene	µg/L	20.0	20.2	20.3	101	102	78-129	0.4	20.0
Di-Isopropyl Ether (DIPE)	µg/L	20.0	19.3	19.7	96.5	98.5	60-154	2.0	20.0
1,2-Dibromo-3-Chloropropane	µg/L	20.0	19.4	21.7	97.0	109	63-134	11.1	20.0
1,2-Dibromoethane	µg/L	20.0	19.4	20.0	97.0	100	77-135	3.0	20.0
Dibromomethane	µg/L	20.0	19.2	19.4	96.0	97.0	76-138	1.0	20.0
1,2-Dichlorobenzene	µg/L	20.0	21.6	20.8	108	104	78-128	3.7	20.0
1,3-Dichlorobenzene	µg/L	20.0	21.2	21.2	106	106	77-125	0.0	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30373 **QC Analytical Batch(es):** V30374
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30373 LCSD-V30373

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
1,4-Dichlorobenzene	µg/L	20.0	19.5	19.7	97.5	98.5	75-126	1.0	20.0
Dichlorodifluoromethane	µg/L	20.0	19.3	19.3	96.5	96.5	28-163	0.0	20.0
1,1-Dichloroethane	µg/L	20.0	19.9	19.9	99.5	99.5	70-130	0.0	20.0
1,2-Dichloroethane	µg/L	20.0	18.3	18.4	91.5	92.0	68-131	0.5	20.0
1,1-Dichloroethene	µg/L	20.0	18.0	19.3	90.0	96.5	70-154	6.9	20.0
cis-1,2-Dichloroethene	µg/L	20.0	20.4	20.2	102	101	76-141	0.9	20.0
trans-1,2-Dichloroethene	µg/L	20.0	20.3	19.8	102	99.0	76-135	2.4	20.0
1,2-Dichloropropane	µg/L	20.0	21.1	20.0	106	100	77-130	5.3	20.0
1,3-Dichloropropane	µg/L	20.0	19.7	19.8	98.5	99.0	76-132	0.5	20.0
2,2-Dichloropropane	µg/L	20.0	20.0	20.0	100	100	29-149	0.0	20.0
1,1-Dichloropropene	µg/L	20.0	20.5	21.0	103	105	71-136	2.4	20.0
cis-1,3-Dichloropropene	µg/L	20.0	20.8	20.7	104	104	65-140	0.4	20.0
trans-1,3-Dichloropropene	µg/L	20.0	17.5	16.7	87.5	83.5	67-140	4.6	20.0
Ethanol	µg/L	500	590	587	118	117	70-130	0.5	20.0
Ethylbenzene	µg/L	20.0	19.2	18.7	96.0	93.5	80-127	2.6	20.0
Ethyl Tertiary Butyl Ether (ETBE)	µg/L	40.0	38.8	39.8	97.0	99.5	70-130	2.5	20.0
Hexachlorobutadiene	µg/L	20.0	26.6	26.3	133	132	61-134	1.1	20.0
n-Hexane	µg/L	20.0	24.0	22.4	120	112	70-130	6.8	20.0
2-Hexanone	µg/L	20.0	19.1	19.3	95.5	96.5	64-137	1.0	20.0
Isopropylbenzene	µg/L	20.0	20.3	20.5	102	103	70-130	0.9	20.0
4-Isopropyl toluene	µg/L	20.0	23.0	22.5	115	113	69-132	2.1	20.0
Methyl Ethyl Ketone (MEK)	µg/L	20.0	17.9	17.6	89.5	88.0	71-134	1.6	20.0
Methyl tert-butyl ether (MTBE)	µg/L	20.0	18.1	18.0	90.5	90.0	68-135	0.5	20.0
4-Methyl-2-Pentanone	µg/L	20.0	19.1	18.0	95.5	90.0	69-134	5.9	20.0
Methylene Chloride	µg/L	20.0	20.4	19.8	102	99.0	73-131	2.9	20.0
Naphthalene	µg/L	20.0	20.6	19.7	103	98.5	64-136	4.4	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30373 **QC Analytical Batch(es):** V30374
QC Prep Batch Method: 5030B **Analysis Method:** 8260D
Analysis Description: Volatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30373 LCSD-V30373

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
n-Propylbenzene	µg/L	20.0	20.2	20.4	101	102	72-132	0.9	20.0
Styrene	µg/L	20.0	20.6	21.3	103	107	78-129	3.3	20.0
1,1,1,2-Tetrachloroethane	µg/L	20.0	20.5	21.2	103	106	79-134	3.3	20.0
1,1,2,2-Tetrachloroethane	µg/L	20.0	19.2	18.7	96.0	93.5	62-127	2.6	20.0
Tetrachloroethene	µg/L	20.0	19.5	19.7	97.5	98.5	80-129	1.0	20.0
Toluene	µg/L	20.0	19.2	19.1	96.0	95.5	76-131	0.5	20.0
1,2,3-Trichlorobenzene	µg/L	20.0	21.9	21.8	110	109	58-144	0.4	20.0
1,2,4-Trichlorobenzene	µg/L	20.0	23.3	22.3	117	112	66-139	4.3	20.0
1,1,1-Trichloroethane	µg/L	20.0	19.1	19.3	95.5	96.5	75-135	1.0	20.0
1,1,2-Trichloroethane	µg/L	20.0	21.0	20.6	105	103	70-140	1.9	20.0
Trichloroethene	µg/L	20.0	19.7	19.3	98.5	96.5	77-133	2.0	20.0
Trichlorofluoromethane	µg/L	20.0	19.4	19.7	97.0	98.5	62-148	1.5	20.0
1,2,3-Trichloropropane	µg/L	20.0	18.2	17.5	91.0	87.5	71-127	3.9	20.0
1,3,5-Trimethylbenzene	µg/L	20.0	20.5	20.3	103	102	75-131	0.9	20.0
Vinyl Acetate	µg/L	20.0	23.8	23.1	119	116	34-167	2.9	20.0
Vinyl Chloride	µg/L	20.0	19.9	20.3	99.5	102	57-141	1.9	20.0
o-Xylene	µg/L	20.0	19.8	19.6	99.0	98.0	78-128	1.0	20.0
m,p-Xylene	µg/L	40.0	39.7	40.4	99.2	101	77-133	1.7	20.0
4-Bromofluorobenzene (S)					97.2	95.6	80-124		
Dibromofluoromethane (S)					97.2	98.4	75-129		
1,2-Dichloroethane - d4 (S)					94.8	93.8	63-136		
Toluene-d8 (S)					98.6	99.4	77-123		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30337 **QC Analytical Batch(es):** V30501
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30337 Matrix: AQU
 Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
Acenaphthene	µg/L	<0.302	0.302	2.00	03/02/23 15:56		
Acenaphthylene	µg/L	<0.297	0.297	2.00	03/02/23 15:56		
Aniline	µg/L	<2.05	2.05	5.00	03/02/23 15:56		
Anthracene	µg/L	<0.836	0.836	2.00	03/02/23 15:56		
Benzo(a)anthracene	µg/L	<0.637	0.637	2.00	03/02/23 15:56		
Benzo(a)pyrene	µg/L	<1.02	1.02	2.00	03/02/23 15:56		
Benzo(b)fluoranthene	µg/L	<2.49	2.49	5.00	03/02/23 15:56		
Benzo(g,h,i)perylene	µg/L	<1.01	1.01	5.00	03/02/23 15:56		
Benzo(k)fluoranthene	µg/L	<1.99	1.99	5.00	03/02/23 15:56		
Benzoic Acid	µg/L	<1.10	1.10	10.0	03/02/23 15:56		
Benzyl alcohol	µg/L	<0.684	0.684	5.00	03/02/23 15:56		
Bis(2-Chloroethoxy)methane	µg/L	<0.468	0.468	5.00	03/02/23 15:56		
Bis(2-Chloroethyl)ether	µg/L	<1.04	1.04	5.00	03/02/23 15:56		
Bis(2-Chloroisopropyl)ether	µg/L	<1.08	1.08	5.00	03/02/23 15:56		
Bis(2-ethylhexyl)phthalate	µg/L	<3.46	3.46	10.0	03/02/23 15:56		
4-Bromophenyl phenyl ether	µg/L	<1.11	1.11	5.00	03/02/23 15:56		
Butyl benzyl phthalate	µg/L	<1.83	1.83	5.00	03/02/23 15:56		
4-Chloro-3-methylphenol	µg/L	<1.18	1.18	5.00	03/02/23 15:56		
4-Chloroaniline	µg/L	<1.33	1.33	5.00	03/02/23 15:56		
2-Chloronaphthalene	µg/L	<1.83	1.83	20.0	03/02/23 15:56		
2-Chlorophenol	µg/L	<0.938	0.938	10.0	03/02/23 15:56		
4-Chlorophenyl phenyl ether	µg/L	<1.71	1.71	5.00	03/02/23 15:56		
Chrysene	µg/L	<0.405	0.405	2.00	03/02/23 15:56		
Dibenz(a,h)anthracene	µg/L	<0.434	0.434	2.00	03/02/23 15:56		
Dibenzofuran	µg/L	<0.856	0.856	5.00	03/02/23 15:56		
1,2-Dichlorobenzene	µg/L	<2.00	2.00	5.00	03/02/23 15:56		
1,3-Dichlorobenzene	µg/L	<2.00	2.00	5.00	03/02/23 15:56		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30337
QC Prep Batch Method: 3510C
QC Analytical Batch(es): V30501
Analysis Method: 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30337 Matrix: AQU
Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
1,4-Dichlorobenzene	µg/L	<2.05	2.05	5.00	03/02/23 15:56		
3,3'-Dichlorobenzidine	µg/L	<1.89	1.89	5.00	03/02/23 15:56		
2,4-Dichlorophenol	µg/L	<1.46	1.46	10.0	03/02/23 15:56		
Diethyl phthalate	µg/L	<0.745	0.745	5.00	03/02/23 15:56		
Dimethyl phthalate	µg/L	<0.939	0.939	5.00	03/02/23 15:56		
2,4-Dimethylphenol	µg/L	<1.57	1.57	20.0	03/02/23 15:56		
Di-n-butyl phthalate	µg/L	<2.06	2.06	5.00	03/02/23 15:56		
4,6-Dinitro-2-methylphenol	µg/L	<2.07	2.07	10.0	03/02/23 15:56		
2,4-Dinitrophenol	µg/L	<1.92	1.92	10.0	03/02/23 15:56		
2,4-Dinitrotoluene	µg/L	<1.11	1.11	5.00	03/02/23 15:56		
2,6-Dinitrotoluene	µg/L	<0.809	0.809	5.00	03/02/23 15:56		
Di-n-Octyl Phthalate	µg/L	<1.65	1.65	5.00	03/02/23 15:56		
Fluoranthene	µg/L	<0.250	0.250	2.00	03/02/23 15:56		
Fluorene	µg/L	<0.807	0.807	2.00	03/02/23 15:56		
Hexachlorobenzene	µg/L	<0.979	0.979	5.00	03/02/23 15:56		
Hexachlorobutadiene	µg/L	<2.73	2.73	5.00	03/02/23 15:56		
Hexachlorocyclopentadiene	µg/L	<2.05	2.05	5.00	03/02/23 15:56		
Hexachloroethane	µg/L	<1.76	1.76	5.00	03/02/23 15:56		
Indeno(1,2,3-cd)pyrene	µg/L	<0.477	0.477	2.00	03/02/23 15:56		
Isophorone	µg/L	<0.444	0.444	5.00	03/02/23 15:56		
1-Methylnaphthalene	µg/L	<1.14	1.14	2.00	03/02/23 15:56		
2-Methylnaphthalene	µg/L	<0.666	0.666	2.00	03/02/23 15:56		
2-Methylphenol	µg/L	<1.15	1.15	5.00	03/02/23 15:56		
3&4 Methylphenol	µg/L	<0.880	0.880	10.0	03/02/23 15:56		
Naphthalene	µg/L	<0.728	0.728	2.00	03/02/23 15:56		
2-Nitroaniline	µg/L	<1.39	1.39	5.00	03/02/23 15:56		
3-Nitroaniline	µg/L	<1.39	1.39	5.00	03/02/23 15:56		

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30337 **QC Analytical Batch(es):** V30501
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Lab Reagent Blank LRB-V30337 Matrix: AQU
 Associated Lab Samples: 89717, 89718

Parameter	Units	Blank Result	MDL	MQL	Analyzed	% Recovery	% Rec Limits
4-Nitroaniline	µg/L	<1.53	1.53	5.00	03/02/23 15:56		
Nitrobenzene	µg/L	<0.905	0.905	5.00	03/02/23 15:56		
2-Nitrophenol	µg/L	<0.493	0.493	5.00	03/02/23 15:56		
4-Nitrophenol	µg/L	<1.23	1.23	10.0	03/02/23 15:56		
N-Nitrosodimethylamine	µg/L	<0.450	0.450	5.00	03/02/23 15:56		
N-Nitrosodiphenylamine	µg/L	<1.10	1.10	5.00	03/02/23 15:56		
N-Nitroso-di-n-propylamine	µg/L	<0.641	0.641	5.00	03/02/23 15:56		
Pentachlorophenol	µg/L	<1.43	1.43	5.00	03/02/23 15:56		
Phenanthrene	µg/L	<0.428	0.428	2.00	03/02/23 15:56		
Phenol	µg/L	<0.651	0.651	5.00	03/02/23 15:56		
Pyrene	µg/L	<0.434	0.434	2.00	03/02/23 15:56		
1,2,4-Trichlorobenzene	µg/L	<2.21	2.21	5.00	03/02/23 15:56		
2,4,5-Trichlorophenol	µg/L	<1.31	1.31	5.00	03/02/23 15:56		
2,4,6-Trichlorophenol	µg/L	<1.32	1.32	5.00	03/02/23 15:56		
2-Fluorobiphenyl (S)					03/02/23 15:56	84.2	44-119
2-Fluorophenol (S)					03/02/23 15:56	50.1	19-119
Nitrobenzene-d5 (S)					03/02/23 15:56	79.8	44-120
4-Terphenyl-d14 (S)					03/02/23 15:56	97.8	50-134
2,4,6-Tribromophenol (S)					03/02/23 15:56	89.1	43-140
Phenol-d5 (S)					03/02/23 15:56	32.2	11-100

Laboratory Control Sample & LCSD LCS-V30337 LCSD-V30337

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Acenaphthene	µg/L	50.0	42.1	42.6	84.2	85.2	38-117	1.1	20.0
Acenaphthylene	µg/L	50.0	42.2	42.8	84.4	85.6	41-130	1.4	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30337 **QC Analytical Batch(es):** V30501
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30337 LCSD-V30337

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Aniline	µg/L	50.0	111	103	222*	206*	12-197	7.4	20.0
Anthracene	µg/L	50.0	46.1	46.3	92.2	92.6	57-123	0.4	20.0
Benzo(a)anthracene	µg/L	50.0	45.1	44.9	90.2	89.8	58-125	0.4	20.0
Benzo(a)pyrene	µg/L	50.0	55.9	57.0	112	114	54-128	1.9	20.0
Benzo(b)fluoranthene	µg/L	50.0	51.3	52.8	103	106	53-131	2.8	20.0
Benzo(g,h,i)perylene	µg/L	50.0	49.7	51.2	99.4	102	50-134	2.9	20.0
Benzo(k)fluoranthene	µg/L	50.0	50.0	50.5	100	101	53-131	0.9	20.0
Benzoic Acid	µg/L	50.0	15.0	15.4	30.0	30.8	10-125	2.6	20.0
Benzyl alcohol	µg/L	50.0	37.5	37.3	75.0	74.6	31-112	0.5	20.0
Bis(2-Chloroethoxy)methane	µg/L	50.0	39.5	39.6	79.0	79.2	48-120	0.2	20.0
Bis(2-Chloroethyl)ether	µg/L	50.0	33.8	38.9	67.6	77.8	43-118	14.0	20.0
Bis(2-Chloroisopropyl)ether	µg/L	50.0	41.7	41.3	83.4	82.6	37-130	0.9	20.0
Bis(2-ethylhexyl)phthalate	µg/L	50.0	50.1	50.3	100	101	55-135	0.3	20.0
4-Bromophenyl phenyl ether	µg/L	50.0	43.9	45.6	87.8	91.2	55-124	3.7	20.0
Butyl benzyl phthalate	µg/L	50.0	52.0	51.3	104	103	53-134	1.3	20.0
4-Chloro-3-methylphenol	µg/L	50.0	37.4	36.9	74.8	73.8	52-119	1.3	20.0
4-Chloroaniline	µg/L	50.0	40.1	41.5	80.2	83.0	33-117	3.4	20.0
2-Chloronaphthalene	µg/L	50.0	41.1	41.9	82.2	83.8	40-116	1.9	20.0
2-Chlorophenol	µg/L	50.0	34.2	34.6	68.4	69.2	38-117	1.1	20.0
4-Chlorophenyl phenyl ether	µg/L	50.0	41.8	41.8	83.6	83.6	53-121	0.0	20.0
Chrysene	µg/L	50.0	45.6	46.3	91.2	92.6	59-123	1.5	20.0
Dibenz(a,h)anthracene	µg/L	50.0	49.8	51.1	99.6	102	51-134	2.5	20.0
Dibenzofuran	µg/L	50.0	42.2	43.1	84.4	86.2	53-118	2.1	20.0
1,2-Dichlorobenzene	µg/L	50.0	32.8	33.9	65.6	67.8	32-111	3.2	20.0
1,3-Dichlorobenzene	µg/L	50.0	32.1	32.7	64.2	65.4	28-110	1.8	20.0
1,4-Dichlorobenzene	µg/L	50.0	31.6	32.7	63.2	65.4	29-112	3.4	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30337 **QC Analytical Batch(es):** V30501
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30337 LCSD-V30337

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
3,3'-Dichlorobenzidine	µg/L	50.0	38.9	39.3	77.8	78.6	27-129	1.0	20.0
2,4-Dichlorophenol	µg/L	50.0	35.7	35.9	71.4	71.8	47-121	0.5	20.0
Diethyl phthalate	µg/L	50.0	45.2	45.4	90.4	90.8	56-125	0.4	20.0
Dimethyl phthalate	µg/L	50.0	44.0	44.2	88.0	88.4	45-127	0.4	20.0
2,4-Dimethylphenol	µg/L	50.0	39.0	38.7	78.0	77.4	31-124	0.7	20.0
Di-n-butyl phthalate	µg/L	50.0	49.4	50.6	98.8	101	59-127	2.4	20.0
4,6-Dinitro-2-methylphenol	µg/L	50.0	45.9	45.4	91.8	90.8	44-137	1.0	20.0
2,4-Dinitrophenol	µg/L	50.0	49.8	47.7	99.6	95.4	23-143	4.3	20.0
2,4-Dinitrotoluene	µg/L	50.0	46.6	45.3	93.2	90.6	57-128	2.8	20.0
2,6-Dinitrotoluene	µg/L	50.0	45.4	45.8	90.8	91.6	57-124	0.8	20.0
Di-n-Octyl Phthalate	µg/L	50.0	53.4	54.5	107	109	51-140	2.0	20.0
Fluoranthene	µg/L	50.0	44.5	46.0	89.0	92.0	57-128	3.3	20.0
Fluorene	µg/L	50.0	43.5	43.6	87.0	87.2	52-124	0.2	20.0
Hexachlorobenzene	µg/L	50.0	44.0	45.3	88.0	90.6	53-125	2.9	20.0
Hexachlorobutadiene	µg/L	50.0	31.5	31.9	63.0	63.8	22-124	1.2	20.0
Hexachlorocyclopentadiene	µg/L	50.0	33.2	33.7	66.4	67.4	32-117	1.4	20.0
Hexachloroethane	µg/L	50.0	32.0	31.9	64.0	63.8	21-115	0.3	20.0
Indeno(1,2,3-cd)pyrene	µg/L	50.0	49.1	49.7	98.2	99.4	52-134	1.2	20.0
Isophorone	µg/L	50.0	35.9	35.6	71.8	71.2	42-124	0.8	20.0
1-Methylnaphthalene	µg/L	50.0	36.2	36.6	72.4	73.2	41-119	1.0	20.0
2-Methylnaphthalene	µg/L	50.0	34.4	34.1	68.8	68.2	40-121	0.8	20.0
2-Methylphenol	µg/L	50.0	38.6	34.5	77.2	69.0	30-117	11.2	20.0
3&4 Methylphenol	µg/L	50.0	33.1	29.0	66.2	58.0	29-110	13.2	20.0
Naphthalene	µg/L	50.0	33.7	34.0	67.4	68.0	40-121	0.8	20.0
2-Nitroaniline	µg/L	50.0	44.2	45.6	88.4	91.2	55-127	3.1	20.0
3-Nitroaniline	µg/L	50.0	44.7	45.6	89.4	91.2	41-128	1.9	20.0

Quality Control Data

Client ID: F&R, Inc. - Charlotte
Project Description: Greenville PW
Report No: 23-055-0102

QC Prep: V30337 **QC Analytical Batch(es):** V30501
QC Prep Batch Method: 3510C **Analysis Method:** 8270E
Analysis Description: Semivolatile Organic Compounds - GC/MS

Laboratory Control Sample & LCSD LCS-V30337 LCSD-V30337

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
4-Nitroaniline	µg/L	50.0	41.8	43.6	83.6	87.2	45-135	4.2	20.0
Nitrobenzene	µg/L	50.0	35.0	35.8	70.0	71.6	45-121	2.2	20.0
2-Nitrophenol	µg/L	50.0	34.1	35.0	68.2	70.0	47-123	2.6	20.0
4-Nitrophenol	µg/L	50.0	37.4	23.6	74.8	47.2	10-105	45.2*	20.0
N-Nitrosodimethylamine	µg/L	50.0	21.8	22.0	43.6	44.0	10-119	0.9	20.0
N-Nitrosodiphenylamine	µg/L	50.0	55.3	56.0	111	112	51-123	1.2	20.0
N-Nitroso-di-n-propylamine	µg/L	50.0	40.2	40.5	80.4	81.0	49-119	0.7	20.0
Pentachlorophenol	µg/L	50.0	51.3	52.2	103	104	35-138	1.7	20.0
Phenanthrene	µg/L	50.0	45.6	46.7	91.2	93.4	59-120	2.3	20.0
Phenol	µg/L	50.0	25.2	18.3	50.4	36.6	12-58	31.7*	20.0
Pyrene	µg/L	50.0	46.1	46.2	92.2	92.4	57-126	0.2	20.0
1,2,4-Trichlorobenzene	µg/L	50.0	31.7	32.9	63.4	65.8	29-126	3.7	20.0
2,4,5-Trichlorophenol	µg/L	50.0	40.4	41.6	80.8	83.2	53-123	2.9	20.0
2,4,6-Trichlorophenol	µg/L	50.0	41.0	41.5	82.0	83.0	50-125	1.2	20.0
2-Fluorobiphenyl (S)					80.0	82.0	44-119		
2-Fluorophenol (S)					47.9	45.1	19-119		
Nitrobenzene-d5 (S)					68.2	68.6	44-120		
4-Terphenyl-d14 (S)					96.2	95.4	50-134		
2,4,6-Tribromophenol (S)					90.1	87.6	43-140		
Phenol-d5 (S)					45.2	31.1	11-100		

Shipment Receipt Form

Customer Number: **00019**
 Customer Name: **F&R, Inc. - Charlotte**
 Report Number: **23-055-0102**

Shipping Method

Fed Ex US Postal Lab Other :
 UPS Client Courier Thermometer ID:

Shipping container/cooler uncompromised?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Number of coolers/boxes received	<input type="text" value="1"/>		
Custody seals intact on shipping container/cooler?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not Present
Custody seals intact on sample bottles?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> Not Present
Chain of Custody (COC) present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
COC agrees with sample label(s)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
COC properly completed	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Samples in proper containers?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Sample containers intact?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Sufficient sample volume for indicated test(s)?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
All samples received within holding time?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Cooler temperature in compliance?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Water - Sample containers properly preserved	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Water - VOA vials free of headspace	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A
Trip Blanks received with VOAs	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> N/A
Soil VOA method 5035 – compliance criteria met	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="checkbox"/> High concentration container (48 hr)		<input type="checkbox"/> Low concentration EnCore samplers (48 hr)	
<input type="checkbox"/> High concentration pre-weighed (methanol -14 d)		<input type="checkbox"/> Low conc pre-weighed vials (Sod Bis -14 d)	
Special precautions or instructions included?	<input type="radio"/> Yes	<input checked="" type="radio"/> No	

Comments:

Signature:

Date & Time:

Waypoint

ANALYTICAL

449 Springbrook Road • Charlotte, NC 28217
Phone 704/529-6364 • Fax: 704/525-0409

Client Company Name: Foodline and Johnston

Report To/Contact Name: Brinn Olive / Will Dunlop

Reporting Address: 310 Hickory St.

Phone: _____ Fax (Yes/No): _____

Email Address: bolive@foodline.com / wdunlop@foodline.com

EDD Type: PDF Excel Other

Site Location Name: Greenville Pw

Site Location Physical Address: 1500 Beatty St. Greenville, NC

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: _____

Project Name: Greex UST Project: (Yes) (No) _____

Short Hold Analysis (Yes) (No) _____

*Please ATTACH any project specific reporting (QC LEVEL I III IIII IV) provisions and/or QC Requirements

Invoice To: _____

Address: _____

Purchase Order No./Billing Reference _____

Requested Due Date 1 Day 2 Days 3 Days 4 Days 5 Days

"Working Days" 6-9 Days Standard 10 days Rush Work Must Be Samples received after 15:00 will be processed next business day.

Turnaround time is based on business days, excluding weekends and holidays. (SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY WAYPOINT ANALYTICAL, LLC TO CLIENT)

LAB USE ONLY

YES NO N/A

Samples INTACT upon arrival? _____

Received IN ICE? _____

PROPER PRESERVATIVES indicated? _____

Received WITHIN HOLDING TIMES? _____

CUSTODY SEALS INTACT? _____

VOLATILES rec'd W/OUT HEADSPACE? _____

PROPER CONTAINERS used? _____

TEMP: Therm ID: 25 Observed 25°C / Corr. 25°C

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NC _____ SC _____

Other: _____ N/A _____

Water Chlorinated: YES _____ NO _____

Samples Iced Upon Collection: YES _____ NO _____

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER, OR SLUDGE)	SAMPLE CONTAINER			PRESERVATIVES	ANALYSIS REQUESTED			REMARKS	ID NO.	
				*TYPE SEE BELOW	NO.	SIZE							
MH-1	23 Feb 23	0810	W										
MH-3a	"	0900	W										
PRESS DOWN FIRMLY - 2 COPIES													



Sampler's Signature: Will St

Sampled By (Print Name): Will Dunlop

Affiliation: _____

Upon relinquishing, this Chain of Custody is your authorization for Waypoint Analytical to proceed with the analyses as requested above. Any changes must be submitted in writing to the Waypoint Analytical Project Manager. There will be charges for any changes after analyses have been initialized.

Relinquished By (Signature): Will St Received By (Signature): Will Dunlop Date: 2-23-23 Military/Hours: 13:50

Relinquished By (Signature): Will St Received By (Signature): Will Dunlop Date: 2/24/23 Military/Hours: 1330

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

- Fed Ex UPS Hand-delivered Waypoint Analytical Field Service Other
- NDPES: NC SC NC SC NC SC NC SC NC SC
- UST: NC SC NC SC NC SC NC SC
- GROUNDWATER: NC SC NC SC NC SC
- DRINKING WATER: NC SC NC SC NC SC
- SOLID WASTE: NC SC NC SC NC SC
- RCRA: NC SC NC SC NC SC
- BRWNFLD: NC SC NC SC NC SC
- LANDFILL: NC SC NC SC NC SC
- OTHER: NC SC NC SC NC SC

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

LAB USE ONLY

Site Arrival Time: _____

Site Departure Time: _____

Field Tech Fee: _____

Mileage: _____

SEE REVERSE FOR TERMS & CONDITIONS

ORIGINAL



APPENDIX IV
GBA DOCUMENT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.



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Stewart Test Hole Report

Submitted Time: 05/03/2023 11:36 AM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-2	
Utility Type	
Electric	
Cover Top- Feet in Engineer's Scale	
2.0'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
1	
Utility Owner	
Private	
Material Type	Utility Color
PVC	Gray
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.3'	
Soil Condition	
Sand, Clay, Hard, Rocky, Loose	
Notes	
None	

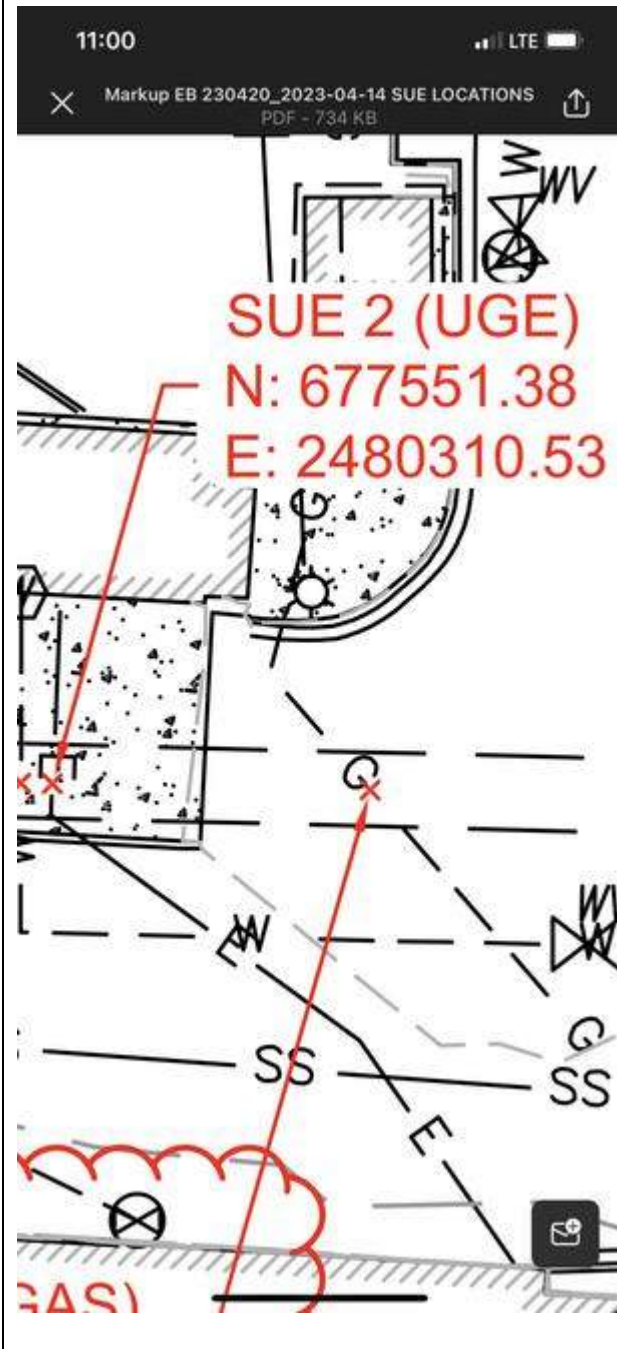
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/09/2023 12:16 PM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-3	
Utility Type	
Gas	
Cover Top- Feet in Engineer's Scale	
1.90'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
1	
Utility Owner	
Private	
Material Type	Utility Color
PVC	Yellow
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.2'	
Soil Condition	
Clay, Hard, Loose	
Notes	
None	

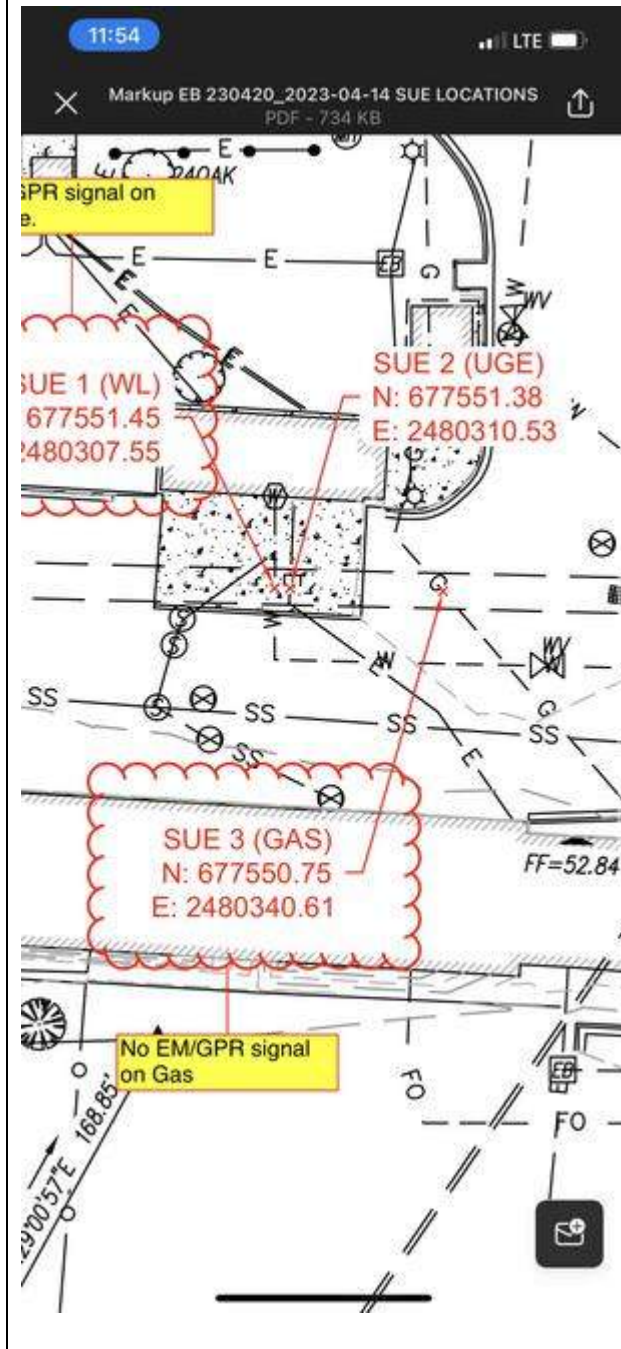
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/08/2023 1:48 PM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-4	
Utility Type	
Electric	
Cover Top- Feet in Engineer's Scale	
2.70'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
2	
Utility Owner	
Private	
Material Type	Utility Color
PVC	Gray
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.4'	
Soil Condition	
Clay, Hard, Rocky, Loose	
Notes	
None	

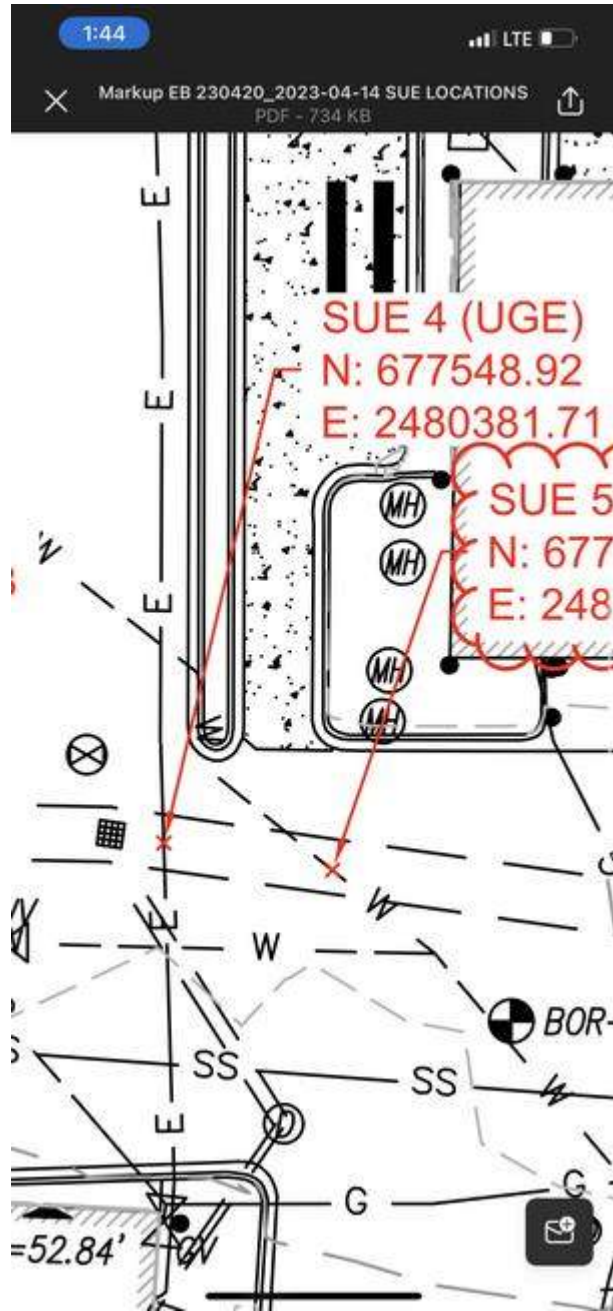
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/09/2023 4:39 PM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-5	
Utility Type	
Water	
Cover Top- Feet in Engineer's Scale	
1.64'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
6	
Utility Owner	
City of Greenville	
Material Type	Utility Color
Ductile Iron	Black
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.4'	
Soil Condition	
Clay, Hard, Rocky, Loose	
Notes	
Crew exposed Joint on water line.	

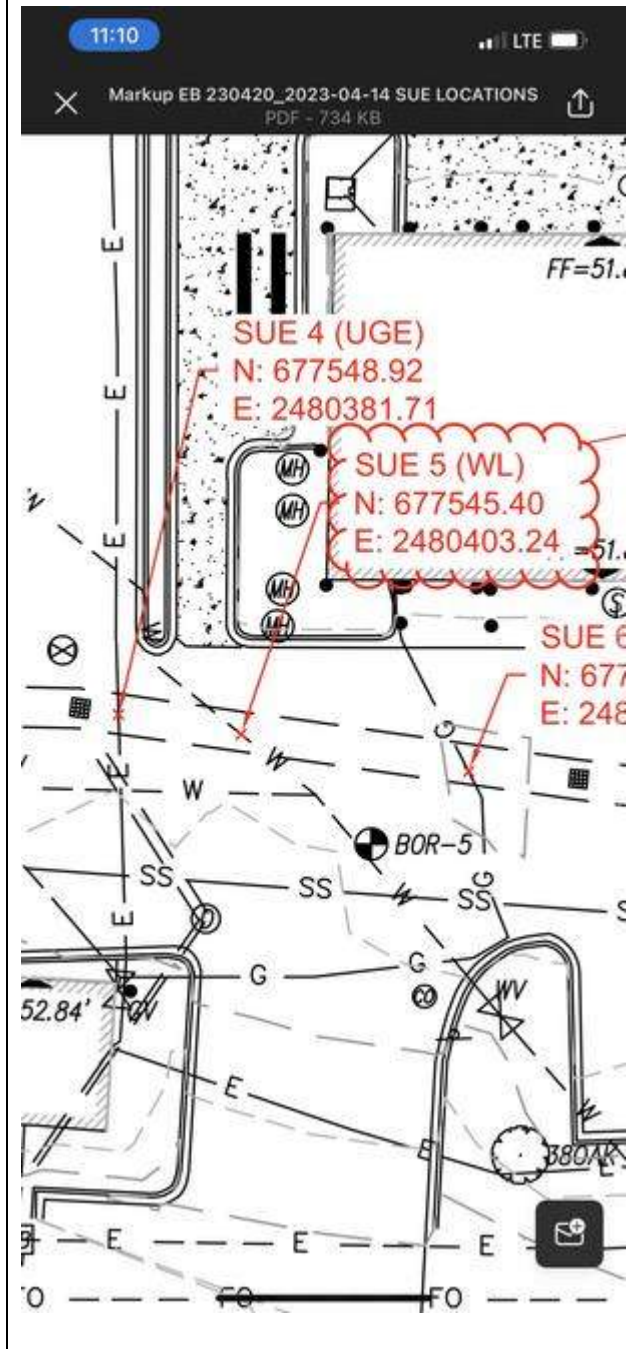
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/03/2023 12:54 PM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-6	
Utility Type	
Gas	
Cover Top- Feet in Engineer's Scale	
1.54'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
1	
Utility Owner	
Private	
Material Type	Utility Color
PVC	Yellow
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
N/A	
Soil Condition	
Clay, Hard, Rocky, Loose	
Notes	
None	

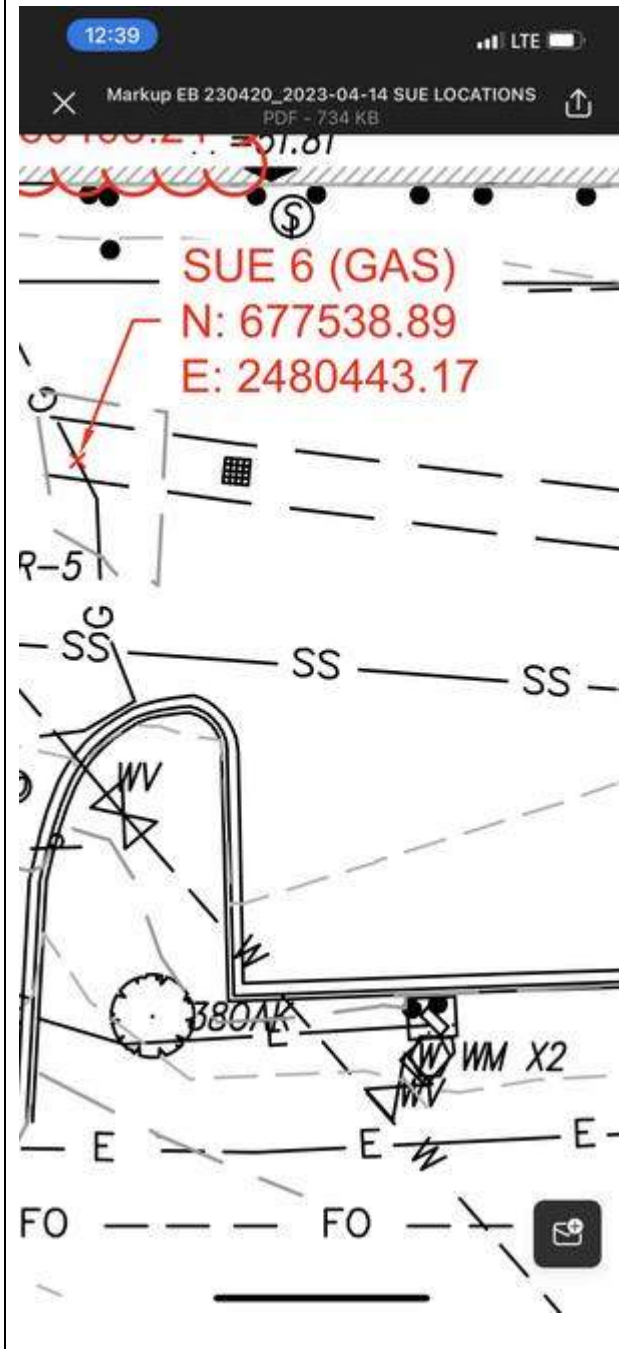
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/03/2023 10:04 AM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-7	
Utility Type	
Electric	
Cover Top- Feet in Engineer's Scale	
1.38'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
1	
Utility Owner	
Private	
Material Type	Utility Color
PVC	Gray
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.4'	
Soil Condition	
Clay, Hard, Rocky, Loose	
Notes	
None	

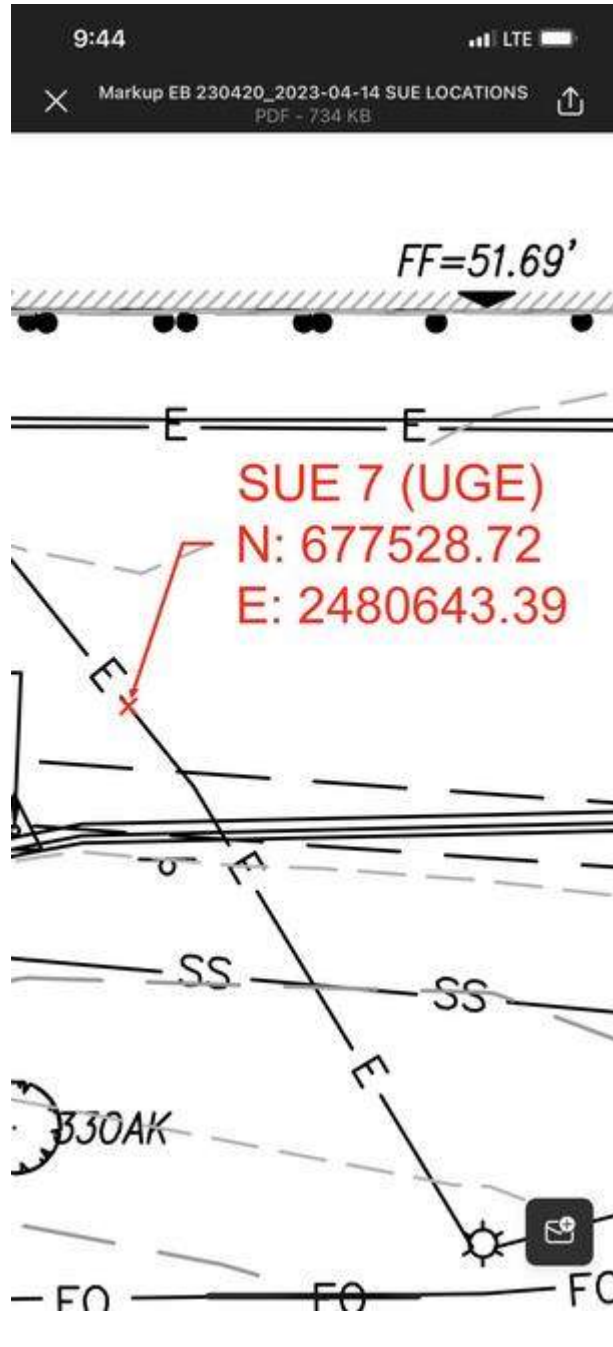
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/09/2023 1:50 PM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-8	
Utility Type	
Sewer	
Cover Top- Feet in Engineer's Scale	
4.35'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
6	
Utility Owner	
City of Greenville	
Material Type	Utility Color
PVC	Gray
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.3'	
Soil Condition	
Clay, Hard, Rocky, Loose	
Notes	
Crew found pipe not in a casing at this location. Crew did notice this SS pipe is in a casing inside the Storm MH nearby.	

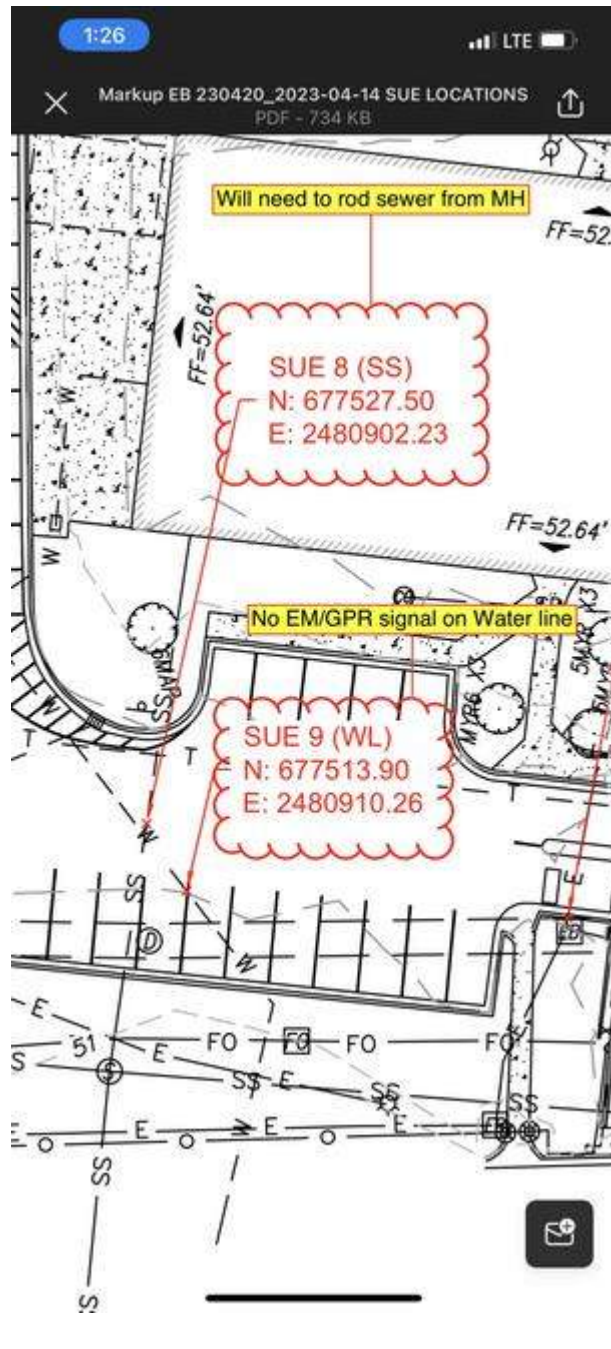
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/09/2023 10:28 AM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-9	
Utility Type	
Water	
Cover Top- Feet in Engineer's Scale	
4.28'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
6	
Utility Owner	
City Of Greenville	
Material Type	Utility Color
ACP	Gray
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.4'	
Soil Condition	
Clay, Hard, Rocky, Loose	
Notes	
Water line has a plastic wrapping around pipe	

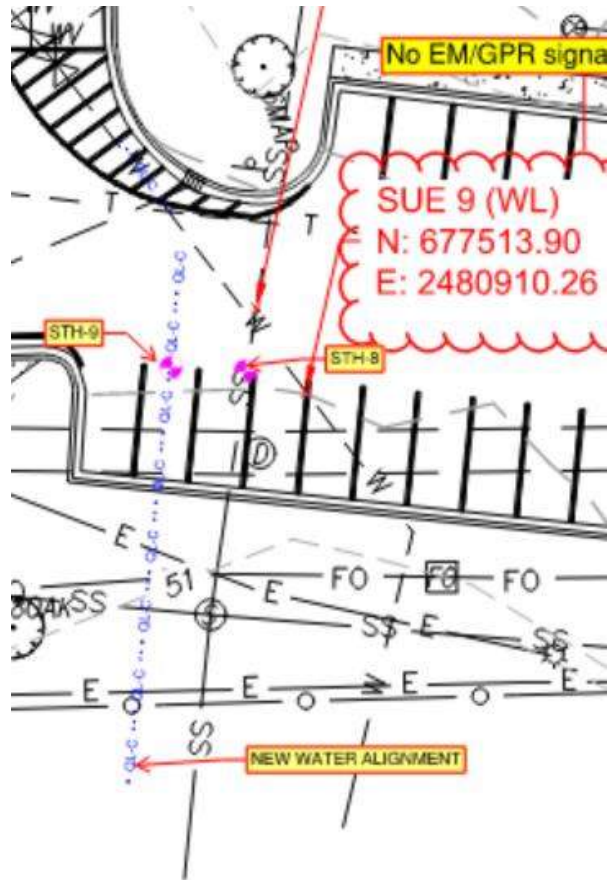
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/03/2023 10:36 AM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-10	
Utility Type	
Electric	
Cover Top- Feet in Engineer's Scale	
1.58'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
2	
Utility Owner	
Private	
Material Type	Utility Color
PVC	Gray
Utility Condition	
Good	
Surface Type	
Grass/Sod	
Surface Thickness- Feet in Engineer's Scale	
N/A	
Soil Condition	
Clay, Hard, Loose	
Notes	
None	

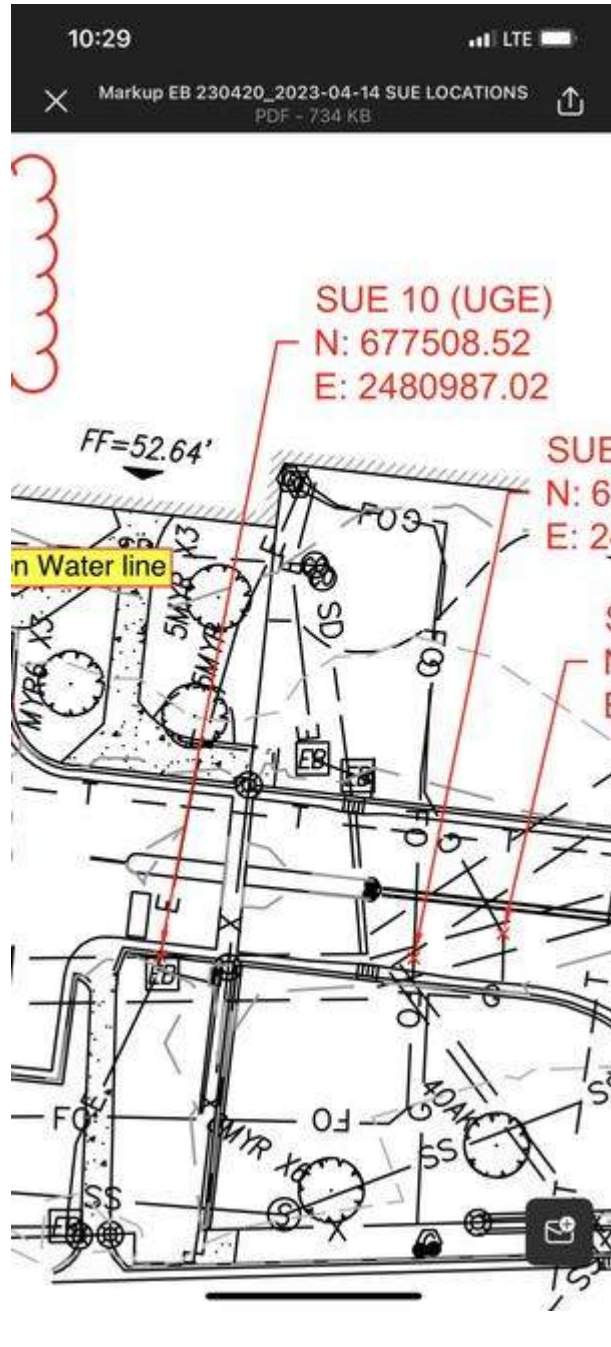
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/08/2023 11:09 AM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-11	
Utility Type	
Telecom F/O	
Cover Top- Feet in Engineer's Scale	
2.62'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
2	
Utility Owner	
AT&T	
Material Type	Utility Color
PVC	Gray
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.4'	
Soil Condition	
Clay, Hard, Rocky, Loose	
Notes	
None	

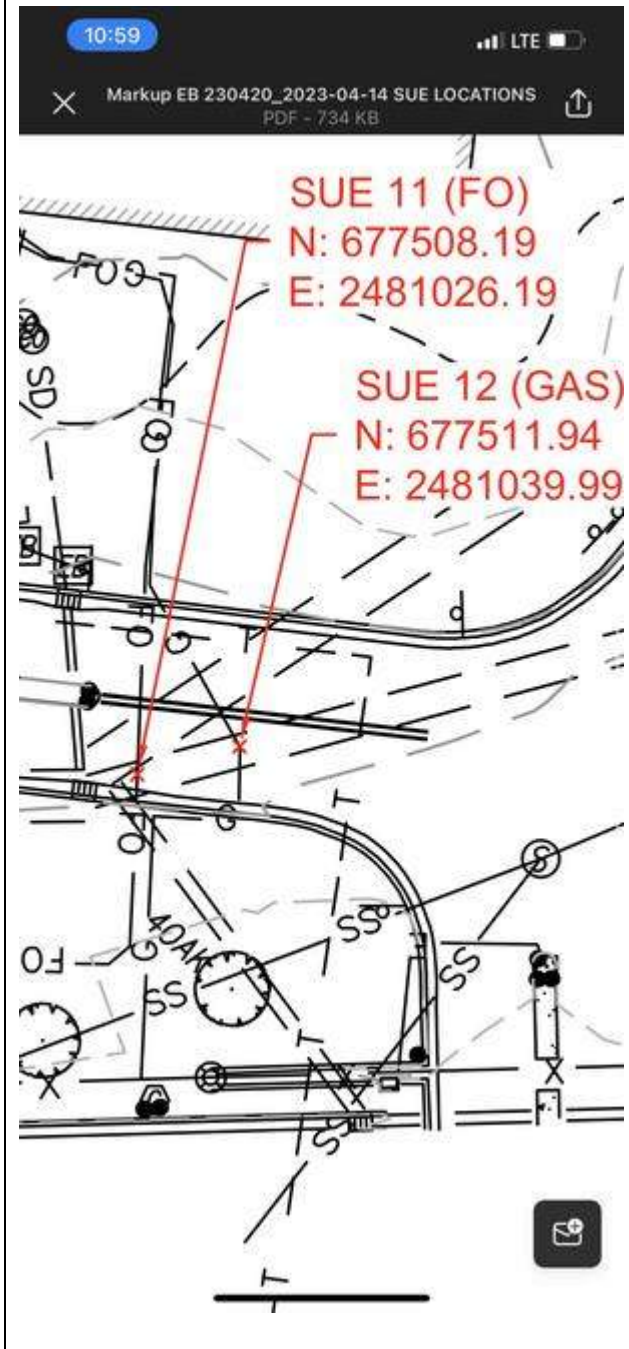
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2



Stewart Test Hole Report

Submitted Time: 05/08/2023 10:35 AM

Project Name	
Greenville PW Yard Stormwater Improvements	
Project Number	
G23004.00	
Submitted By	
Brandon Jones	
Test Hole Number	
STH-12	
Utility Type	
Gas	
Cover Top- Feet in Engineer's Scale	
3.58'	
Cover Bottom	
N/A	
Size of Utility- OD in Inches	
1	
Utility Owner	
Private	
Material Type	Utility Color
PVC	Yellow
Utility Condition	
Good	
Surface Type	
Asphalt	
Surface Thickness- Feet in Engineer's Scale	
0.4'	
Soil Condition	
Clay, Hard, Rocky, Loose	
Notes	
None	

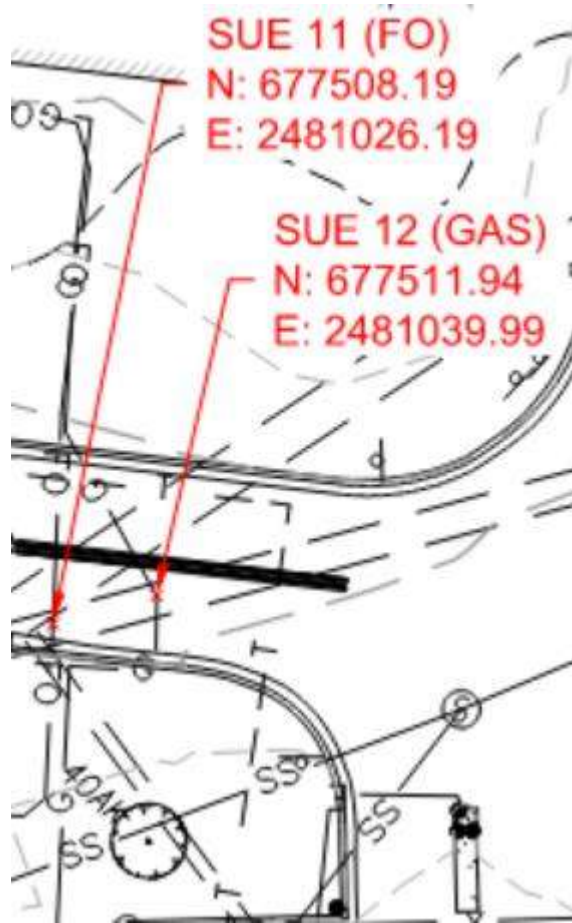
Test Hole Location



Image of Test Hole



Additional Photo 1



Additional Photo 2

